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PROCEEDINGS OF THE CHIEF CONSERVATOR OF FORESTS
No. 235, PRESS, DATED 29TH APRIL 1930

REVISED WORKING PLAN

FOR THE

NILGIRI PLANTATIONS

OFFICE OF THE ... No. 9 DEC 1933 ... OOTACAMUND

PREPARED BY

W. G. DYSON, Esq.,
Deputy Conservator of Forests

1928

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WORKING PLAN FOR THE NILGIRI PLANTATIONS.

INTRODUCTION.

The last Working Plan dealing with the Nilgiri plantations was drawn up by Mr. Cox and was sanctioned in Board's Proceedings No. 150, Forest, dated 3rd August 1914.

Mr. Cox's plan gave definite prescriptions for a period of five years from 1913–14, with recommendations for a further period of five years, i.e., up to 1924.

Since that date work has been continued under a number of separate schemes and addenda to Mr. Cox's plan.

The following revised plan brings these together into a connected whole, with certain modifications where necessary; provides for an increased rotation in working the Eucalyptus globulus coppice areas; and brings under working areas hitherto not worked in order to meet the increased demand which now exists. It also deals with certain plantations of hardwood Eucalyptus which have been formed since Mr. Cox's plan was written.

PART I.

CHAPTER I.—THE TRACT DEALT WITH.

Name and Situation.

1. The Working Plan deals with the plantations of Eucalyptus globulus and other exotics on the Nilgiri Hills in the vicinity of the towns of Ootacamund and Coonoor.

Configuration of the Ground.

2. The plantations are all on slopes of various degrees of steepness with every variety of aspect, and at altitudes varying from 5,000 feet above sea level at Teppakutchi to over 8,300 feet on Dodabetta.

Geology, rock and soil.

3. The principal rock is a finely-grained gneiss, indistinctly foliated and easily decomposible. From decomposition is formed a ferruginous clay in which are embedded large spheroidal boulders of gneiss.

4. There is a marked deficiency of lime in the soil, and except where alluvium or vegetable humus has been collected, the surface soil is a stiff heavy clay, retentive of moisture, but unsuitable for many of the common European forest trees.

Climate and Rainfall.

5. The climate is temperate and equable. At Ootacamund (7,300 feet) the average maximum and average minimum daily temperatures are 65° Fah. and 49·5° Fah., respectively, with a mean of 56·9° Fah. At Coonoor (6,200 feet) the average is 6° Fah. hotter. At Ootacamund there is a difference of only 8° Fah. in the mean temperature of the hottest and coldest months—April and January.

6. January, February and March are usually almost rainless, with clear skies and (in January) frosty nights. Thunder storms are frequent throughout April and May, and the monsoon usually bursts about the second week in June. From June to the middle of August or sometimes later, the monsoon is blowing, giving heavy continuous rain on the Kundahs and the west of the plateau, and heavy showers alternating with "Scotch mist" at Ootacamund and the more inland situations. With a longer or shorter break the north-east monsoon follows, giving cyclonic rain in the Coonoor neighbourhood and lighter rain at Ootacamund. In November and December at Ootacamund the skies are clear and ground frosts re-appear, while on the eastern side of the plateau sunshine and arin alternate until the close of the year.

7. At Ootacamund the average annual rainfall is 50 inches; at Coonoor 65 inches.

Distribution and area.

8. A detailed area statement of the plantations dealt with is given in Appendix I (*a*). The following is an abstract of it :—

—	Area under plantation.					Grass and swamp.	Shola.	Total.
	Eucalyptus globulus.	Other Eucalyptus.	Acacia.	Other species.	Total planted.			
	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.
Ootacamund range ..	703·37	207·22	115·89	119·59	1,146·07	184·58	337·88	1,668·53
Coonoor range ..	380·36	111·27	83·98	90·35	665·96	69·66	99·56	835·18
Total ..	1,083·73	318·49	199·87	209·94	1,812·03	254·24	437·44	2,503·71

The total area dealt with is 2,503·71 acres of which about one-third is in the neighbourhood of Coonoor, the rest lying near Ootacamund. About three-fourths of the total area are planted. The remaining quarter is made up of shola, grass and swamp within or adjoining the plantations. The total planted area is distributed as follows :—

Eucalyptus globulus	60	per cent.
Other Eucalyptus mainly "hardwood"	17	,,
Acacia	11	,,
Other exotics	12	,,

State of the Boundaries.

9. Where the plantations form whole reserves the boundaries are demarcated by cairns, and in some cases by a lockspitted trench. In other cases the plantations form parts of the reserve in which they are situated, and are not separately demarcated. But as all plantations are fire-protected, the scraped fire lines serve the purpose of demarcation lines.

Legal Position.

10. All the plantations are situated on land duly notified as reserved forest. Reference to the order constituting the different areas of reserved forest is made in Appendix I under each plantation.

Rights and Concessions.

11. A number of roads and bridle paths passing through the plantations are admitted as rights of way, and other minor rights and privileges exist, none of them affecting the working of the areas under this plan. Those admitted as rights are noted in the detailed description of each plantation given in Appendix I. The minor privileges (water diversions, etc.), are covered by annual permits, and as they are of a temporary nature they are not specified here.

CHAPTER II.—THE FOREST.

Composition and Condition of the Crop.

12. A detailed description of each plantation, by compartments is given in Appendix I. Here it is only necessary to describe the chief types.

Eucalyptus globulus plantations.

13. The majority are formed on the site of old sholas, (evergreen indigenous forests) which were cleared for fuel in the early days of settlement on the Nilgiris. In such situations the evergreen species usually re-assert themselves to some extent, and form a more or less scanty undergrowth to the Eucalyptus. In shola type plantations there is usually in addition a considerable undergrowth of brambles, bracken, strobilanthus and other weeds.

14. In plantations formed on grass land there is usually little or no undergrowth, though in both types Eupatorium glandulosum has spread rapidly over the ground in recent years. Where this has not occurred the grass usually persists under the light shade of the coppice. As would be expected the yield from grassland plantations is noticeably smaller than from those formed on shola soil.

15. About 70 per cent of the area under Eucalyptus globulus is now simple coppice, some of it at present in its fifth rotation. Some of the more remote plantations still stand as high forest, having been left unworked hitherto. A few have been definitely treated as high forest, but only one small area (Aramby Block IV) has received anything that could be described as adequate sylvicultural treatment at fairly regular intervals throughout its life.

16. Eucalyptus in mixture with Acacia (Acacia dealbata, Acacia decurrens and Acacia melanoxylon) is of common occurrence. Occasionally all three acacias are found in the same plantation, but Acacia dealbata and Acacia melanoxylon are by far the most common.

17. Any one of these acacias forms an excellent understorey to Eucalyptus. A fine example of this is the growth of these species in high forest at Rallia, where Eucalyptus globulus forms the upperstorey and Acacia (chiefly Acacia melanoxylon) the lower. In coppice forest there is a tendency for Acacia melanoxylon to die out.

18. Whether as coppice or as high forests, the growth of Eucalyptus globulus, even on the poorer soils, is marvellously rapid, the mean annual increment varying in coppice crop from about 300 Stacked feet to as much as 570 per acre according to quality (paragraphs 114 and 115 infra).

19. Among the Eucalyptus globulus occasional specimens or patches of Eucalyptus sieberiana, Eucalyptus obliqua, Eucalyptus calophylla, and a few other species are found. But Eucalyptus globulus forms at least 95 per cent of the crop.

Plantations of Hardwood Eucalyptus.

20. Eight different species of Eucalyptus, which in Australia yield useful sleeper timber, have been raised in small experimental plantations. Some details appear in Appendix V. The oldest of these is now 17 years of age. Several of the species in particular Eucalyptus pillularis, Eucalyptus punctata and Eucalyptus eugenoides (vide paragraph 151) show considerable promise, and during the last three or four years the area under hardwoods has been extended, partly by planting up grassland and partly by replanting felled acacia areas.

Acacia plantations.

21. At first Acacia melanoxylon and Acacia dealbata were usually planted in a mixture. Owing to the less vigorous coppicing powers of the former and to its susceptibility to attack by loranthus the proportion of this species has greatly diminished, and in many cases it has almost disappeared.

22. In addition to coppicing freely the other two Acacias spread rapidly over adjoining grassland by root suckers.

23. As timber, however, the trees are useless, and for the production of fuel they do not compare with Eucalyptus.

Conifer plantations.

24. These date from 1886—1891 and were formed by Mr. Gamble as experiments in his search for a satisfactory exotic timber tree. Calitris rhomboidea covers the largest area, either pure or mixed with Pinus longifolia or Cryptomeria japonica. Small plantations of Cupressus macrocarpa, Cupressus torulosa and Cupressus Lawsoniana also exist; and here and there are small clumps of pines and of Cryptomeria japonica.

25. None of these plantations is of much economic importance. Calitris, at the age of 40, appears to be already past its prime. The most interesting feature it possesses is the extraordinary ease with which it reproduces itself from seed. In really good moist soil Cryptomeria japonica grows moderately well.

Miscellaneous exotics.

26. The only others of sufficient importance to deserve mention are the plantations of Casuarina quadrivalis (Cairnhill) of Casuarina suberosa (Teneriffe and Tent Hill) and of Grevillia robusta in both of these plantations.

27. Grevillia robusta is well established on the Nilgiris as a shade tree for tea and coffee, but it prefers the lower elevations. The casuarinas are a failure.

Injuries to which the crop is liable.

28. *Wind* blows down a number of trees every year and does some damage to young coppice growth; but it is not a serious menace. Calitris suffers perhaps most heavily from this cause, especially after thinning.

Fire.—Where plantations adjoin grassland or private plantations there is danger of ground fires spreading into the plantations. Some (but as a rule not very serious) damage is done.

Frost in the hollows kills small Eucalyptus plants if they are not protected against it, especially young plants of the hardwood species.

Loranthus.—Acacia melanoxylon is particularly subject to attack by a species of loranthus which often kills the tree outright.

Pigs uproot a number of seedlings every year in newly planted areas.

Cattle are troublesome in young plantations, especially in the new hardwood plantations at brooklands.

CHAPTER III.—UTILIZATION OF THE PRODUCE.

Agricultural customs and wants of the population.

29. Agricultural customs need not be considered, as the plantations do not serve rural areas.

30. The main object of the plantations is to supply the demand for firewood and charcoal in the municipalities of Ootacamund and Coonoor and in the military cantonment of Wellington. For timber there is some demand. Unfortunately none of the exotics forming the plantations produces a timber of satisfactory quality. The hardwood Eucalyptus species, whose values are still to be tested, may perhaps prove an exception. It is true that for rough building work Eucalyptus globulus is used as timber to a considerable extent, but the demand for this class of produce is met almost entirely from trees which are usually to be found growing on private land near the spot where the timber happens to be required.

Markets and marketable produce.

31. The marketable produce is firewood and charcoal: the markets are the towns of Ootacamund, Coonoor and Wellington. In recent years a considerable export trade in fuel to Coimbatore by rail has arisen, and this has made it possible to bring under working the more remote and hitherto more or less unworked areas round Ootacamund. At Coonoor the local demand tends to exceed the supply.

32. Minor articles of produce which are saleable are bluegum leaves, from which Eucalyptus oil is distilled, and branchwood too small for stacking as fuel.

Lines of export.

33. With very few exceptions all the plantations are adequately served either by public roads or by roads constructed and maintained by the department. Of recent years, as has been mentioned above, large quantities of fuel have been exported by rail to Coimbatore.

Methods of exploitation and their cost.

34. The system at present followed is to fell the coupes departmentally, and to stack the fuel into 'lots' in the coupe. The stacked fuel is auctioned periodically by the District Forest Officer.

35. Until a few years ago the whole business of supply, from the growing tree to the consumer's house, was in the hands of the Forest department. The arrangement led to constant petty disputes, and to endless trouble over matters of detail. It was long ago realized that retail trading in firewood was hardly the work of the department, but, as no contractor would come forward to take over this work, there was no alternative.

36. Now, however, a number of men have taken up the fuel business both in Coonoor and Ootacamund and there is enough competition between them to give us fair prices for our produce.

37. In Ootacamund the custom is to cut the fuel into billets 3 feet long and to stack the billets into 'lots' measuring $8' \times 5' \times 3'$. A freshly stacked lot thus measures 120 cubic feet stacked. In selling, the contractor delivers to the customer

100 cubic feet stacked, it being assumed that by the time the fuel is dry enough to burn it has lost 20 cubic feet by dryage and loss of bark—an allowance which is probably excessive. Approximately 68 stacked cubic feet = one ton (vide paragraph 186).

38. In Coonoor (except for charcoal manufacture) the stacks are of the same dimensions but the billets are cut 1½ feet in length instead of 3 feet. There is no apparent reason for this difference, but the custom is well established.

39. In both ranges very large trees have to be converted into 'split' fuel. The demand for this class of firewood is however limited and the prices paid by contractors compare unfavourably, allowing for the increased cost of conversion, with those obtained for round billets. Billets up to 15 inches in diameter are best stacked in the round.

40. The supply of firewood to Government House is the only instance now in which the department delivers fuel to the consumer.

41. Charcoal is made in the Rallia group of plantations in the Coonoor range. The work is done departmentally. Burning is done in octagonal brick kilns which give an average outturn of charcoal, by weight, of about 21 per cent of the wood burnt. The charcoal is packed in bags of 56 lbs. and is carted on contract to Coonoor depot where a fixed monthly quantity is delivered to a contractor at a prearranged rate per bag.

42. Recently, efforts have been made to find a market for our surplus charcoal at Kotagiri. These attempts have met with some success and there is every hope that this demand will continue and expand.

43. Current costs of exploitation are—

(1) *Firewood—*

(*a*) Felling and stacking—

	Ootacamund.		Coonoor.		
	RS.	A.	RS.	A.	
3 feet billets, unsplit ...	2	2	2	0	per lot of 120 cubic feet stacked.
1½ Do. ...	...		3	0	Do.
1½ feet billets, split ...	4	5	4	0	Do.

(*b*) Carting—

	RS.	A.	
From Snowdon and Marlimund to Government House, 1½ miles.	4	4	per lot.
From Snowdon and Marlimund to Ootacamund town, 3 miles.	5	0	"

The following are approximate rates from other plantations (from which no departmental carting is now done). Transport by motor lorry is coming more and more into use each year:—

	RS.	A.	
* From Cairnhill Baikie and Muthinad to Ootacamund, 4 to 6 miles.	6	0	per lot.
From Governorshola group to Ootacamund, 7 miles ...	6	12	"
From Coonoor Peak to Coonoor or Wellington, 5 to 6 miles.	6	0	"
From Bandyshola to Coonoor or Wellington, 3 to 4 miles.	4	0	"

(2) *Charcoal—*

	RS.	A.	P.	
Felling and stacking 3 feet billets	2	0	0	per lot of 120 cubic feet stacked.
Shifting to kiln	0	12	0	do.
Burning	0	4	0	per bag of 56 lbs. charcoal.
Carting to depot	16	0	0	per 100 bags of 56 lbs. each.

* Rs. 2 extra in monsoon.

Past and current prices.

44. Below is given a statement showing the rates per 'lot' of 120 cubic feet stacked, obtained for fuel in the plantations at auction sales held during the past three years.

Plantation.	1925–26.		1926–27.		1927–28.		Remarks.
	Split.	Unsplit.	Split.	Unsplit.	Split.	Unsplit.	
	RS. A.	RS. A.	RS. A.	RS. A.		RS. A.	
Aramby	..	6 8 to 8 8	..	8 0 to 8 5	..	6 12 to 7 4	....
Cairnhill	..	..	..	..	..	7 8 to 7 12	....
Baikie and Madanna	8 0	6 8	6 4	5 5	..	..	....
Governorshola group	7 8	5 0 to 5 12	4 12	2 8 to 3 14	..	3 0 to 4 12	The lower prices are for acacia fuel.
Brooklands and Bingham	..	4 4	..	3 12	..	..	Acacia fuel.
Snowdon	..	8 8	..	8 8	..	8 8	Rs. 12-12-0 delivered at Government House. Carting charges are Rs. 4-4-0.
Muthinad	..	4 0 to 4 4	..	3 4	..	..	....
Coonoor Peak	..	8 5	..	9 9 to 10 0	..	9 0 to 10 8	....
Bandyshola and Springfield	..	8 8	..	9 2 to 10 0	..	9 1 to 10 6	....

The current price for charcoal is Rs. 1-2-0 per 56 lbs. delivered at Coonoor depot.

CHAPTER IV.—STAFF AND LABOUR SUPPLY.

45. There is no labour problem. Abundant labour is available locally whenever it is required.

46. In both ranges a Forester is employed more or less exclusively in charge of the plantations.

In Ootacamund range he is assisted by five guards and two watchers and in Coonoor range by three guards and one watcher.

47. In Coonoor range, a Forester in charge (under the Range Officer) is sufficient. In Ootacamund range the operations are on a larger scale and are more scattered, and the Range Officer has less time to devote to the plantations. It is very desirable to have an Assistant Ranger permanently allotted to this range to be in charge of all fuel and planting operations.

CHAPTER V.—PAST SYSTEM OF MANAGEMENT.

General history of the plantations.

48. Mr. Cox in his Working Plan of 1914 has compiled an account of the early history of these plantations. This is of great permanent interest, and to ensure that it is not lost sight of, it is reproduced verbatim below :—

"*Date of settlements on the Nilgiris.*—The European settlements on the Nilgiris date from about 1820 and by the year 1830 Ootacamund had become a considerable station with a large convalescent home for officers and men of the Bombay and Madras armies, some thirty private residences and a native bazaar. Coonoor and Wellington settlements followed some years later.

Provision of timber and firewood.—For timber for house construction and for firewood the settlement was dependent on the surrounding natural forests. These, locally known as 'sholas', are characteristic features of the Nilgiris. In the ravines and folds of the ground the 'shola,' consisting of slow-growing evergreen trees of small size, protects the slopes from erosion and conserves the springs and water-sources. That is their natural function. As a source of timber and fuel the shola on the higher elevations has little value, partly owing to its slow and stunted growth, partly because the species which compose it only reproduce themselves under the most favourable conditions, and generally because of all types of Indian forest the shola seems to be most susceptible to ill-treatment.

Regulations to prevent destruction of the shola.—The destruction of the sholas round the settlements was therefore natural and rapid and the attention of Government was drawn to it in very early days. Various solutions of the difficulty were attempted from time to time. A clause was inserted in the title-deeds of land granted to private owners compelling them to replace by saplings all blanks caused by felling. Certain better classes of trees were reserved from felling whether on private or public land. The felling of any shola forest within the actual limits of the settlements was prohibited; and later on, in 1837, Government directed the absolute closure of all forest within a three-mile radius of the stations.

Failure of conservancy.—The whole of these rules and regulations were more or less inoperative and the sholas gradually disappeared. The settlements became dependent on supplies of fuel and timber brought in from a distance by cart-loads and head-loads and the price of fuel rose to an extent almost prohibitive to the poorer classes, which fell back in self-defence on extensive theft from the closed forests. Up to the year 1852 no establishment was employed to protect the forests. Thereafter a Forester and six peons were appointed as guardians of the closed forests; but so unsuccessful were their efforts that five years afterwards Government reconsidered the whole subject and called in Dr. Cleghorn of the Forest Service to advise.

Dr. Cleghorn's suggestion to plant exotics.—Dr. Cleghorn's most important suggestion, namely, the planting of some fast-growing exotics, was one that had already been made by several private persons interested in the rapid destruction of the indigenous forest. It had been from the first a characteristic of the early enthusiastic settlers to experiment with all sorts and kinds of trees, shrubs, flowers and vegetables belonging to a temperate climate; and a good deal of experience had been gained.

The introduction of Australian Wattles and Eucalyptus.—Of the two species of trees, the Acacia and the Eucalyptus, which have left so great a mark on the Nilgiris, the Acacia, if not the first to be introduced, was the one which attracted the greatest attention. General Morgan, in his book 'Forestry in Southern India', states that Acacia melanoxylon and dealbata were introduced by Colonel Dunn in the early 'forties' and that in 1845 there were a few A. melanoxylon in the compound of Colonel Dunn's house and that of the club.

At the time of Dr. Cleghorn's report, although both varieties were uncommon, their rate of growth and suitability to local conditions were generally appreciated.

The Eucalyptus is considered to have been introduced to the Nilgiris by Captain Cotton of engineering fame, and General Morgan notes that in 1843 there were four specimens of Eucalyptus globulus planted by the above gentleman in his properties of Gayton Park and Wood-Cot. Other individuals appear to have followed Captain Cotton's example and in 1852 General Morgan found a tree in fruit in the compound of Colonel Havelock's house. From the seed of this tree, which seems to have been Eucalyptus globulus, 400 plants were raised; and General Morgan was so impressed with the rate of growth and vitality of the young trees that in 1856 he ordered a large consignment of seed from Australia.

The effective introduction therefore of the bluegum dates from 1857 when 150,000 plants were raised and distributed all over the district.

Government grants for Acacia planting.—In 1856 Government sanctioned a grant of Rs. 10,000 for the planting of Acacia. The allotment was divided between Captain Campbell at Wellington and Mr. E. B. Thomas, the Collector at Ootacamund; while a further grant of Rs. 1,350 was given to Mr. McIvor, Curator of the Public Gardens, to plant with exotics the waste lands of Ootacamund settlement as an example and encouragement to the residents.

Captain Campbell's work is seen at Bandyshola, the oldest of the Government plantations on the hills. Mr. Thomas appears to have devoted his energies to filling up the blanks in the denuded sholas, and the existence of Acacia on Snowdon, Fern-Hill, and elsewhere within the sholas is due to his initiative. General Morgan states that the majority of the trees round the lake margin were planted by Mr. McIvor in 1856; their variety would seem to support the statement.

Continued destruction of the sholas and regulations.—Plantations are not however the work of a day and despite the activity of Government and private enterprise, the fuel famine at Ootacamund and Wellington was in no way relieved. Wholesale thefts from the sholas continued and Government, in 1859, convinced of the future success of plantations of exotics, formulated very rigid rules for the protection of the indigenous forests with the immediate view of stimulating planting by private persons. Under these rules the whole of the sholas within the settlements were absolutely reserved. Timber and fuel could only be removed from them under the supervision of the protective staff and were to be sold by auction outside the forest. Beyond the limits of the settlements the sholas were to be selected and marked out in lots of sufficient size to provide one year's fuel supply to the stations. The product of felling was to be sold by auction. All felled areas were to be at once planted with exotics. And finally no felling on licence was to be allowed within any forests belonging to Government.

To enforce these rules an additional Forester was appointed to the Ootacamund Circle, an overseer to that of Coonoor and Wellington, and the control transferred from the Collector (Mr. Thomas) to a special officer (Major Morgan).

Rise in price of fuel and local discontent.—For the next few years therefore the settlements were supplied through contractors with shola wood fuel and very large clearings were made, not all of which were replanted.

The previous denudation of the sholas round Ootacamund may be estimated by the fact that the supply of fuel was at this time dependent first on the felling of Governor's shola and then on that of Devashola, the latter being about ten miles from Ootacamund by the road which Government specially constructed for the transport of fuel. The long lead, bad roads, the cost of carting kept the price of fuel at a very high figure and resulted in great local discontent, which was voiced in reports from the Tahsildar of Ootacamund, the Collector, and Mr. J. Ouchterlony, the well-known coffee planting pioneer on the Nilgiris.

Government's refusal to introduce the permit system.—The whole subject was dealt with by Government in a long order, dated 21st November 1863. Government refused to consider its determination not to open the sholas to indiscriminate felling on licence whether within or without the three miles radius. The necessity of stimulating private enterprise was again adverted to, and all the satisfaction which the opponents of the existing system obtained was the promise of opening to felling some forest nearer than Devashola—a promise which, for reasons given below, was not given effect to.

Opening of cinchona, tea and coffee estates.—The difficulty connected with fuel supply had already reached its maximum. Hereafter large supplies of firewood were made available by the opening up of cinchona, tea and coffee estates. At Ootacamund, for instance, 320 acres of hitherto protected shola on the Dodabetta range and 650 acres at Devashola were felled for cinchona planting in the years 1862 to 1869, a considerable number of coffee estates were opened out in the neighbourhood of Coonoor during the early sixties; while the introduction of the waste land rules in 1863 gave an impetus to the opening of tea estates throughout the district.

No further complaints of the scarcity and cost of firewood are met with and it is doubtful whether after 1866 there was any further felling of shola expressly to meet a firewood demand.

Necessity of reorganizing protective forest establishment.—In some other respects forest affairs continued to be on an unsatisfactory footing. In 1868, Mr. Breeks, the Commissioner, wrote 'day by day I feel more satisfied that unless conservancy is taken in hand and organized on some efficient footing under the control of an experienced officer, the destruction of the surrounding sholas is but a question of time'.

It has to be realized that in 1868 many of the sholas had actually disappeared from the neighbourhood of the stations; others which had been tardily conserved were either being cut about by fuel collectors, or cut down for the contract supply of fuel, and that as yet the plantations, which were to take their place, had not come into bearing.

Appointment of Major Jago to manage the shola plantations.—Government decided that the Forest Department represented by Major Morgan, who had charge also of the Mudumalai, Sigur, Bolampatti and other forests below the ghats, was not capable of giving the necessary attention to the work at Ootacamund and Coonoor and that it was undesirable to permit the existence of any department over which the Commissioner on the spot had not entire control. It accordingly directed that the care of the sholas and of the plantation work on the plateau should be restored to the Commissioner and deputed a special officer, Major Jago, to superintend the work of conservancy and planting.

Mr. Breeks' advocacy of the bluegum.—Mr. Breeks seems to have been the first to realize the greater possibilities of the bluegum and was personally averse from spending any Government money on the propagation of Acacias. He wrote to Government 'it seems to me that the present mode of pitting, mossing and forcing a host of these Australian Acacias, which once they have got into a place cannot be got out of it and grow from seed and suckers in every sort of ground, is a needless expense. There is hardly a residence in Ootacamund which is not overrun with the Acacia.

His advice was taken and there is no doubt that the results have justified his faith so far as firewood is concerned; but his further advice to Government to form large plantations of Eucalyptus to supply the Indian Railways with sleepers and country at large with 'a timber specially valuable from its durability and hardness for all building purposes and in most respects superior to teak' was luckily not taken.

Activity of the Jungle Conservancy department in planting bluegum.—Up to the restoration of management to the Commissioner in 1869, rather less than 200 acres of plantation had been formed. Of this area except for a small plantation of Eucalyptus in old Aramby the whole was planted with Acacia, either mixed or pure."

Hereafter the bluegum dominated the proceedings and the period 1869—1875 was one of great activity in planting under the supervision of Major Jago. About 700 acres of bluegum

plantations were formed at Cully, Chowghat Cully, Norwood, Huppatti, Andy, Baikie, and Kooli in the neighbourhood of Ootacamund, and the Newman, Rallia, Coonoor Peak, Black Bridge plantations were started at Coonoor and Wellington.

Transfer of the plantations and sholas to the Forest Department.—In 1874 Major Jago came under orders of recall for military duty by the Commander-in-Chief and the whole question of control of the Nilgiri forests had to be reconsidered. It was finally decided with the sanction of the Government of India that Major Jago was to be admitted into the Forest service as a Deputy Conservator of Forests and was to remain in charge of the Nilgiri plantations which were to be treated as imperial forests. It was also decided to increase the area of plantations and during the next seven or eight years several hundred acres were planted in the Coonoor and Ootacamund Ranges, notably at Teppakuchi, Little Rallia, Bathri, Muthinad and other places, bringing the total area of plantations in 1882 to about 1,300 acres.

Inspection and report by Dr. Brandis, Inspector-General of Forests.—In the latter year the Nilgiris were inspected by Dr. Brandis, Inspector-General of Forests, during his deputation to advise the Government on forest administration in Madras. His views on the subject of the Ootacamund and Coonoor plantations are given on pages 251 to 264 of his report and express his admiration for the enormous production of timber, which he compared much to the disadvantage of even the finest European oak and silver fir forests. He was careful to avoid speculation on the timber qualities of either Eucalyptus or Acacia. On his recommendation, Mr. Hutchins of the Mysore Forest Service subsequently conducted an investigation into the rate of growth and timber production of the plantations, the results of which were printed by Government as a pamphlet in 1883. Sir Dietrict Brandis recognized, what has since been a common subject of complaint, that the Hill stations of the Nilgiris were in danger of becoming completely overgrown with exotic timber trees, but at the same time considered that provision must be made for the days when a railway would consume large quantities of firewood and bring to the plateau a very much larger population. The limit of extension was placed at 5,000 acres for the three chief settlements ; but postponement of the railway project, and the great extension of private plantations of bluegum, removed any necessity as years went by for extension on so large a scale.

Advisability of planting up the Badaga country.—The most interesting of Sir Dietrict's suggestions was that which dealt with the forest-denuded Badaga country. He laid particular stress on the advantage of boldly planting along the bare ridges in the midst of cultivation, not only to supply timber and fuel to the villagers but to increase the fertility of the cultivated valleys, protect the hill sides from erosion, and conserve the water-supply and the few remaining sholas.

Mr. Gamble's working schemes.—Slightly preceding the Inspector-General came Mr. Gamble who, from his long residence on the hills and the immense interest he took in the subject, acquired an unrivalled knowledge of the plantations. Schemes for future management were drawn up by him in 1882 and revised in some details in 1886. Unfortunately the reports have long been lost and all that remains on record are his notes on the plantations written in the latter year. The loss is a serious one as little is known of the early management of the plantations beyond occasional remarks in the annual reports and these throw insufficient light on the cost of formation and working or on the financial results.

Experimental planting of timber yielding exotics.—Mr. Gamble during his tenure of the Conservatorship at Ootacamund seems to have been satisfied with the extent of the regular plantations of Eucalyptus and Acacia and to have mainly confined his exertions to experiments with various species likely to produce a satisfactory timber. To him are due the Calitris rhomboidea plantations at Cairn Hill, Armby and Coonoor Peak ; the mixed plantations of the latter with conifers at Coonoor Peak and Rallia ; the numerous small experimental plantations of Cupressus macrocarpa and torulosa, Cryptomeria japonica, Casuarina quadrivalvis and suberosa, as well as the introduction of various pines, eucalyptus, bamboos and other exotics, throughout the plantations.

His schemes for the bluegum plantations were carried out without much deviation.

Proposals to convert plantations into high forest.—About 1892, difficulty was experienced in selling fuel, especially at Ootacamund, owing to large supplies of bluegum wood being thrown on the market from private plantations. In 1894, Mr. Cherry, the then Conservator of Forests, suggested the conversion of the plantations into high forest on the ground that the existing demand for fuel was fully met from private plantations ; but the Government of India, through the Inspector-General of Forests, demurred to the suggestion without a full and special investigation.

Eventually a committee of two Conservators and the local District Forest Officer, Mr. C. G. Doughlas, sat to consider the whole subject. Their verdict was that there was no future for eucalyptus timber sufficient to warrant a wholesale conversion of the plantations, that there was a prospect of an increased demand of fuel and that as far as possible the existing system of felling should be followed leaving, wherever necessary, more standards. On these lines Mr. H. Tireman, Assistant Conservator, drew up a working plan for two of the plantations providing for pure coppice with whatever modifications were necessary in actual working. The

working plan was provisionally sanctioned but never published. In fact the whole subject seems to have been dropped in the complete uncertainty as to when the railway would reach Octacamund and what precise effect it would have on the question of supply and demand.

Management since 1895.—With Mr. Gamble's departure originality ended. No new schemes came into working and the management just 'carried on' in a spirit of considerable uncertitude. No more plantations were formed and no more experiments were made with exotics. Plantations from which fuel could be exploited at a profit were worked, sometimes under one system and sometimes under another, on the general scheme of rotation fixed in 1882.

Those lying far from the market or ill-provided with communications were not worked at all or only worked occasionally.

And this, as will be seen from the description and history of the various plantations, is the state of things to-day.

The railway as a fairy god-mother to the Forest Department has been a conspicuous failure. It burns Cardiff 'brickettes.'

The economic success of the plantations.—In other respects it may be said that the introduction to the Nilgiris of the Acacia and Eucalyptus globulus has been an extraordinary success. The price of firewood in the chief Nilgiri markets is lower than that in any other important station in India and is procurable by the poorest residents. Timber, certainly not of the best quality but reasonably good, is equally cheap. The picturesque sholas have been saved from destruction and incidentally the numerous springs and water courses, which are of so much local value, have been preserved. The bluegum in mass may not be an object of beauty, but it certainly makes the plateau more habitable to the low-country Indian.

The plantations from a forest point of view.—From a Forest Officer's standpoint the plantations have been a success in all but the financial side. The growth is often magnificient and if it occurred in Europe would be a subject of general interest. Probably nowhere else in the world can be seen such coppice growth as exists in some of the plantations nor is there any record known to the writer of growth exceeding that of such plantations as the 40 years old mixed Eucalyptus and Acacia at Rallia, or of the unworked portions of Coonoor Peak.

Financial aspect of the plantations.—The financial side is admittedly unsatisfactory. Owing to the facility and cheapness with which a Eucalptus plantation can be formed, there is a greater supply than demand and the price of fuel is very low. Large areas of the Government plantations remain unworked while their conservancy remains a constant tax on the State."

49. The above account brings the history of the plantations up to 1914 when Mr. Cox's plan was sanctioned.

50. Mr. Cox's plan provided—

(1) for the management of the more accessible of the Eucalyptus and Acacia areas as simple coppice on a 15 year rotation;

(2) for the working of some of the more distant ones to supplement the supply if and when necessary;

(3) for the retention of other somewhat inaccesible plantations as High Forest, mainly because they could not be profitably exploited;

(4) for the manufacture of charcoal from the outturn from thinnings in parts of the High Forest areas; and

(5) for the formation of small experimental plantations of Hardwood Eucalyptus (actually formed before the plan was drawn up).

51. With minor deviations work since 1914 has been conducted on these lines. During the last few years it has become possible to abandon the tedious method of retailing the outturn departmentally. The fuel is now cut and stacked by the department and sold to wholesale dealers.

52. In 1922 and 1923 coupes were sold standing. The objections to this method are two fold—(i) the difficulty of obtaining reliable figures of outturn and (2) the impossibility of compelling purchasers to work up to time. The latter objection is a very serious one as it interferes sadly with any systematic scheme of working. It has also been calculated that the net revenue was less when coupes were sold standing, especially when allowance is made for realizations for bluegum leaves and branchwood, which under the system of departmental felling are sold separately. Departmental felling was reintroduced in 1924 and it is strongly urged that no departure from this system should be allowed in future without the most careful consideration.

53. Although the Railway has been a disappointment in the matter of the fuel it burns it has nevertheless proved a great help to us in the last year or two. A considerable export trade in firewood to Coimbatore has grown up and appears to be increasing, and this has enabled us to bring under working the full extent of our plantations bringing about a gratifying improvement in the financial aspect of the management. The following are the monthly exports by rail from September 1927 to December 1927.—

September	113 tons.	November	204 tons.
October	180 „	December	402 „

Part of this came from private plantations.

The Pykara hydro-electric scheme, if it materialises and gives power to Coimbatore, may however affect the position adversely.

54. From 1922—1924 the area under Hardwood Eucalyptus was increased by about 120 acres by forming the new plantations of Dodabetta and Blackbridge. Further extension of new plantations was stopped in 1924 in the absence of any certainty that these species of Eucalyptus, grown here, would produce a serviceable timber. But the area under Hardwoods has been slowly increased by planting up felled Acacia areas in Bandyshola and Brooklands plantations.

55. *Past Yield.*—Details of the past yield from each compartment are given in the description of compartments in Appendix I.

56. For the five years preceding the introduction of Mr. Cox's Working Plan (i.e., 1907—1912) the average annual outturn from the plantations amounted to 298,307 cubic feet stacked (Ootacamund 143,229; Coonoor 155,078). During the same period the annual charcoal outturn was 33 tons at Ootacamund and 47 tons at Coonoor or 80 tons in all.

57. In 1926–27 the outturn had risen in Ootacamund Range to 585,540 st. cubic feet and in Coonoor to 247,410 st. cubic feet (total 832,950 st. cubic feet) with an outturn of charcoal in Coonoor Range alone of 126½ tons. The departmental manufacture of charcoal in Ootacamund Range was discontinued in 1923.

58. The following statement gives the total outturn of major produce for the last fifteen years:—

Year.	Firewood.			Charcoal.		
	Ootacamund.	Coonoor.	Total.	Ootacamund.	Coonoor.	Total.
	C. FT. STACKED.	C. FT. STACKED.	C. FT. STACKED.	TONS.	TONS.	TONS.
1913–14	177,650	209,702	387,352	48	42	90
1914–15	245,960	175,860	421,820	42½	31½	74
1915–16	203,635	186,840	390,475	39	28	67
1916–17	165,037	241,560	406,597	41	54½	95½
1917–18	272,300	306,400	578,700	25	104½	129½
1918–19	227,587	230,365	457,952	22½	106½	129
1919–20	215,589	311,976	527,565	58	167	225
1920–21	236,869	149,246	386,115	54½	43	97½
1921–22	308,147	197,215	505,362	77½	89	166½
1922–23	245,820	230,340	476,160	26	98	124
1923–24	305,180	296,676	601,856	9	93	102
1924–25	209,300	192,300	401,600	..	133	133
1925–26	708,773	256,100	964,873	..	159	159
1926–27	585,540	247,410	832,950	..	126½	126½
1927–28	432,073	201,480	633,553	..	110	110

59. *Past Revenue and Expenditure.*—For the five years preceding the preparation of Mr Cox's Working Plan (i.e., for the years 1907–08 to 1911–12), the plantations taken as a whole, yielded an average annual profit on working of Rs. 4,750 out of an average annual gross revenue of Rs. 22,300. But this account does not take into consideration interest on the capital cost of formation of the plantations, the value of the land on which they stand, capital expenditure on roads, and cost of 'direction'.

60. The two following statements give the financial results of working for the years 1913–14 to 1927–28. The three items of a capital nature mentioned in the preceding paragraph are again omitted as they are impossible to determine; but allowance has been made for establishment, including a suitable proportion of the District Forest Officer's pay and office expenses.

A. *Expenditure.*

Year.	Felling and transport of fuel and manufacture and transport of charcoal.	Roads.	Buildings.	Fire protection.	Establishment.	Miscellaneous.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1913–14	19,701	2,714	2,373	261	9,872	2,152	37,073
1914–15	18,067	3,812	225	279	9,359	2,177	33,919
1915–16	20,826	3,702	167	266	8,541	2,767	36,269
1916–17	22,485	5,942	279	371	8,882	2,720	40,679
1917–18	36,205	7,582	208	266	8,839	2,072	55,172
1918–19	33,586	1,726	141	277	10,922	1,174	47,826
1919–20	34,943	2,292	395	245	10,296	950	49,121
1920–21	20,148	2,829	103	398	11,519	682	35,679
1921–22	24,677	7,315	166	261	12,501	704	45,624
1922–23	12,984	4,989	414	529	12,452	1,760	33,128
1923–24	12,626	5,233	189	438	11,286	1,016	30,788
1924–25	9,711	1,043	229	368	12,689	1,191	25,231
1925–26	19,921	2,173	288	430	10,958	1,353	35,123
1926–27	22,037	1,093	596	352	10,000	3,668	37,746
1927–28	16,633	930	1,092	395	10,000	5,789	34,839

B. *Profit and loss.*

Year.	Total expenditure.	Total revenue.	Profit.	Loss.
	RS.	RS.	RS.	RS.
1913–14	37,073	28,865	..	8,208
1914–15	33,919	27,993	..	5,926
1915–16	36,269	37,584	1,315	..
1916–17	40,679	45,817	5,138	..
1917–18	55,172	57,986	2,814	..
1918–19	47,826	63,495	15,669	..
1919–20	49,121	51,248	2,127	..
1920–21	35,679	39,437	3,758	..
1921–22	45,624	35,821	..	9,803
1922–23	33,128	40,374	7,246	..
1923–24	30,788	25,299	..	5,489
1924–25	25,231	32,785	7,554	..
1925–26	35,123	31,199	..	3,924
1926–27	37,746	60,568	22,822	..
1927–28	34,839	58,257	23,418	..
Total ..	..	..	91,861	33,350
Deduct loss ..	..	..	33,350	..
Net profit ..	..	..	58,511	..

61. The statement of profit and loss (above) shows on the average a small annual profit on working until 1926–27 when the effect of bringing under working the remoter areas such as Governor's shola is felt, and a much larger profit is shown. The loss in 1925–26 is occasioned by these increased fellings the revenue from which was not realized until the following year.

62. Considerable expenditure of a capital nature, mainly on roads was incurred between 1916 and 1923 (vide Appendix IV).

CHAPTER VI.—STATISTICS OF GROWTH AND YIELD.

63. Details of all reliable figures of crop actuals from past simple coppice fellings of Eucalyptus globulus are given in Appendix II (list of points), and are plotted on the curve given in that appendix. A great many of the recorded figures of yield in the earlier rotations are, unfortunately, rendered valueless by the fact that no information is available to show the nature of the fellings—whether simple

coppice, coppice with standards and so on. In many cases also there is doubt regarding the actual areas to which the figures refer. The necessity for the greatest care in recording future yields connot be too strongly emphasized.

64. A point in connexion with coppice growth of Eucalyptus which has often been discussed, but on which no very definite conclusion has hitherto been reached, is whether or not there is a falling off in yield in successive rotations.

65. Both in this connexion and for comparison of yields from crops grown on 'shola' and 'grassland' types of soil the figures given in the following statement are of considerable interest. They show the yields from all compartments of Aramby Block II (shola type) and Aramby Block III (grassland type) in which reliable figures of yield from simple coppice are available for two or more rotations. The figures given represent the total available reliable data bearing on these points. In order to compare the yields at different ages all yields have been expressed as percentages of the yield, for the corresponding age, read off from a basic curve, and for this basic curve the average (II quality) curve in Appendix II has been adopted. The two blocks compared are similarly situated as regards elevation and aspect, and they adjoin each other.

Statement showing yields from Aramby Block II 'Shola type' and Block III 'Grassland type'.

Compartment. (1)	Year of felling. (2)	Age at felling. (3)	Yield per acre in stacked cubic feet. (4)	Average yield per acre (from curve) at age in column (3). (5)	Percentage column (4) to column (5). (6)	Number of rotation. (7)
	Aramby Block II—Shola type.					
		YRS.				
2	1901-02	10	5,527	4,475	123	2
	1912-13	11	4,680	4,800	98	3
3	1908-09	10	4,818	4,475	108	3
	1926-27	18	8,254	7,000	118	4
4	1901-02	10	3,795	4,475	85	2
	1912-13	11	3,620	4,800	76	3
5	1908-09	10	4,917	4,475	109	3
	1921-22	13	6,307	5,450	116	4
6	1909-10	10	4,240	4,475	95	3
	1922-23	13	4,899	5,450	89	4
7	1907-08	10	4,554	4,475	102	3
	1922-23	15	5,620	6,100	92	4
8	1900-01	10	4,818	4,475	108	2
	1911-12	11	4,808	4,800	100	3
10	1906-07	10	3,895	4,475	87	3
	1925-26	19	5,139	7,350	69	4
11	1900-01	10	4,603	4,475	103	2
	1911-12	11	4,685	4,800	98	3
12	1907-08	10	4,306	4,475	96	3
	1925-26	18	6,312	7,000	90	4
	Aramby Block III—Grassland type.					
1	1897-98	12	4,422	5,150	86	1
	1907-08	10	4,257	4,475	95	2
	1927-28	20	6,512	7,600	86	3
2	1896-97	11	4,735	4,800	99	1
	1906-07	10	4,719	4,475	105	2
	1923-24	17	6,239	6,725	93	3
3	1898-99	13	3,564	5,450	66	1
	1908-09	10	3,267	4,475	73	2
5	1895-96	12	3,056	5,150	59	1
	1905-06	10	3,531	4,475	79	2
	1925-26	20	6,906	7,600	91	3
6	1899-00	13	3,888	5,450	71	1
	1908-09	9	3,500	4,150	84	2
9	1897-98	10	3,465	4,475	77	1
	1907-08	10	2,491	4,475	56	2
	1921-22	14	4,433	5,800	76	3
10	1901-02	14	4,933	5,800	85	1
	1912-13	11	4,440	4,800	93	2
12	1904-05	10	3,811	4,475	85	2
	1923-24	19	7,589	7,350	107	3

66. A study of the figures in the statement given above shows that the yield from grassland type crops is distinctly less than that from shola type crops, as would

be expected. The difference, taking an average from 20 crop actuals in each case and expressing the yields as percentages of the yield according to the basic curve is—

	PER CENT.
Shola type	98·1
Grassland type	83·3

67. As the shola type yields are mainly from second, third and fourth rotation crops, and the grassland type yields are chiefly from first and second rotation crops, it would be fairer to compare the yields at the same rotation in each type. Unfortunately the number of crop actuals available is too small for much reliance to be placed on the results obtained by doing this, but the figures are given for what they are worth. The figure in brackets after each percentage is the number of crops from which the average is struck—

	Shole type. PER CENT.	Grossland type. PER CENT.
1st rotation	No data.	77·57 [7]
2nd "	104·75 [4]	83·75 [8]
3rd "	96·90 [4]	90·60 [3]
4th "	97·00 [4]	No data.

68. Briefly the above figures indicate, so far as they go—

(1) that the grassland type crop yields on an average about 15 per cent less than the shola type crop ;

(2) that a second rotation crop yields more than a first rotation crop (The increase may be tentatively put at 6 per cent to 7 per cent and may be attributed to the fact that the second rotation trees start the rotation with established root systems) ;

(3) that while there appears to be a slight fall in yield in subsequent rotations the facts available are too meagre to justify any conclusions on this point. The fourth rotation average for shola type and the third rotation average for grassland type actually show an increase over the third and second rotation averages for those types : but it is unsafe to rely on an average from so few measurements.

69. The following table showing the average height and girth and the average number of stems per acre of Eucalyptus globulus coppice is taken from Mr. Cox's plan. The figures were obtained by him by the measurement of a number of sample areas :—

Eucalyptus globulus coppice.

Age.	Shoots per acre.	Girth over bark at breast height (inches).	Height in feet.
5	2,100	10·2	33
6	1,640	11·6	40
7	1,320	13·0	45
8	1,120	14·5	51½
9	970	16·0	55½
10	870	17·3	60
11	780	18·5	63
12	720	19·4	66
13	680	20·2	69
14	640	20·7	71
15	600	21·4	73
16	570	21·9	74½
17	550	22·94	76½
18	520	22·9	78
19	490	23·3	78½
20	470	23·8	81
21	450	24·2	82
22	440	24·5	83
23	420	24·75	84
24	410	25·0	84½
25	400	25·2	85¼

70. Sample plots in Eucalyptus globulus high forest (Muthinad and Aramby Block IV) and various plots in the Calitris and Cypress plantations have been measured periodically under Mr. Cox's plan, as well as a number of individual trees in Coonoor Peak. Details of these measurements are recorded in the special sample plot registers.

71. Permanent sample plots in the Hardwood Eucalyptus plantations are being laid out by the Forest Research Officer.

PART II.

FUTURE MANAGEMENT DISCUSSED AND PRESCRIBED.

CHAPTER I.—BASIS OF PROPOSALS.

GENERAL OBJECTS OF MANAGEMENT AND BRIEF STATEMENT OF TREATMENT REQUIRED TO SECURE THEM.

72. Briefly the objects of management are—

(1) to meet the local (and more distant) demand for fuel and charcoal, at the same time obtaining the greatest possible financial yield from working the plantations, and bringing them as near as possible to the 'normal' state as regards the distribution of age classes and the completeness of stocking ;

(2) to test the usefulness as timber of certain 'Hardwood' Eucalyptus, and the financial prospects of raising plantations of these species on the poorer classes of soil and in the exposed situations which alone would be available for any large extension of work in this direction ;

(3) to grow, mainly as objects of interest, a very limited number of large sized Eucalyptus globulus timber trees ;

(4) to maintain, also as objects of interest, small areas under exotic conifers and other species.

73. The treatment required to secure these objects is briefly discussed below.

74. *Accessible bluegum areas.*—Bluegum coppices with phenomenal success. Many areas worked as coppice are now in their fifth rotation and very little falling off in yield is observed in successive rotations. Old stools have no doubt a somewhat less vigorous capacity for coppice reproduction, but it is believed that in cases where regrowth has been poor (e.g., parts of Muthinad where light thinnings were made) the cause is to be sought rather in the want of sufficient light than in the age of the stools. This is borne out by the satisfactory state of the coppice in those parts of Muthinad where heavy thinnings, admitting plenty of light, were made.

For all bluegum areas except the somewhat inaccessible plantations of Muthinad, Devashola and Dharma tope and the small plot of high forest in Aramby (Block IV) the system of management will be simple coppice. The rotation to be adopted is discussed in the working plan for the coppice working circle.

75. *The more remote bluegum areas.*—The plantations of Muthinad, Dharma tope and Devashola have hitherto, so far as they have received any attention at all, been worked as high forest. Muthinad remained unworked until 1914, and since then has been subjected to thinning the yield from which has been partly converted into charcoal and partly sold as firewood.

76. For want of attention in their early years there is a great accumulation of suppressed, dead and dying material, while with the exception of some scattered dominant trees, the crowns of the main crop are very badly developed and the trees are now too old to respond properly to thinnings.

77. There is very little hope that the crop can ever find a market as timber. What demand there is for timber of this class is met almost exclusively from the large numbers of big trees nearly always to be found on private land near the spot where the timber happens to be required.

78. The correct treatment would probably be to clear-fell these plantations before the trees become too big to handle and too large for coppice reproduction. But on account of the somewhat inaccessible situation of the plantations there is little profit to be made by working them for firewood, and it will be of some interest to watch the future development of the better grown trees of the crop.

79. These areas will therefore be worked as coppice with standards—a few magnificent trees being left standing over the coppice, evenly spaced over the area. It is neither practicable nor necessary to attempt to arrange age gradations of the standards. It is considered that so long as a reasonable margin of profit is obtained by selling the outturn as firewood, there is no necessity to revert to the department manufacture of charcoal in these plantations.

80. *Aramby Block IV*—is a small area of bluegum high forest which has received more or less regular sylvicultural treatment throughout its life. It is only about 3 acres in extent and it will be retained as high forest for future observation.

81. *Charcoal burning in Coonoor Range.*—The plantations of Rallia, Little Rallia and Newman in Coonoor Range are, owing to transport difficulties, unworkable except for the manufacture of charcoal. The material for charcoal burning was under Mr. Cox's plan obtained from thinnings, the plantations being treated as high forest. A change to simple coppice has however been made recently under proper sanction. There is no object in growing timber in these plantations and the increased demand for charcoal justifies the change to simple coppice. The present system will therefore continue, the outturn being converted into charcoal departmentally.

82. *Conifers and miscellaneous exotics.*—Calitris covers the largest area occupied by these. The calitris plantations are about 40 years old, and appear to be already past their prime. The species is unsightly, slow growing (compared with Eucalyptus) and very liable to be thrown by wind. Although it produces a tolerably good fuel, bluegum is much preferred by the consumer and commands much better prices. Taking advantage of the extraordinary ease with which it reproduces itself by seed it would doubtless be possible to work the Calitris areas under the uniform system. But we should be growing a produce little in demand, and considerable expenditure would be necessary on thinning and tending the young crop.

It would probably be cheaper in the long run to clear-fell these areas and to replant with something more useful and profitable. This is especially desirable in Coonoor Range where the demand tends to exceed the supply.

83. With the possible exception of the small areas under Cryptomeria japonica the same arguments apply, more or less, in the case of other conifers and miscellaneous exotics, and the desirability of getting rid of these and replanting with Eucalyptus has been considered. On inspection, however, with this end in view it has been found that many of these are on the worst possible soil (e.g., Tent Hill and the Casuarina area on Teneriffe); or are too small to justify the road construction necessary for working them for fuel, or are worth retaining as objects of interest and to relieve the monotony of large areas under bluegum (e.g., Cairnhill and Teneriffe). It is therefore proposed to confine conversion to the calitris plantations in Aramby (part) and in Cairnhill and to the mixed Pine and calitris plantation in Teneriffe compartment 2. The other plantations of conifers and miscellaneous exotics will be retained and such tending as may be necessary will be prescribed. But it will be laid down that the possibility of constructing a road to bring under working the conifer area on Rallia Hill shall be examined; and if this can be done at a reasonable cost this plantation should be clear-felled and replanted with Eucalyptus.

84. The choice of a tree to plant in place of these conifer plantations lies between Eucalyptus globulus and one or more of the Hardwood Eucalyptus. As the areas chosen for conversion are near the market and are required for the production of fuel, planting with Eucalyptus globulus will be prescribed: it is much easier and cheaper to raise and produces a heavier outturn of fuel.

85. *Acacia melanoxylon areas.*—This species occurs pure or nearly pure only in a few small areas in the Governorshola group, in part of Snowdon Block II, Compartment 6, and in a small patch in Rallia. The tree does not coppice freely and if felled, the areas would have to be replanted. In their present condition the areas are picturesque and they form the best artificial substitute we have for the indigenous shola. They will remain unworked.

86. *Acacia dealbata areas.*—In Ootacamund Range a scheme is in force for the conversion of the Acacia plantations of Bingham, Brooklands, Lascelles to Hardwood Eucalyptus. A similar scheme is under working in Coonoor Range for the Acacia areas there. This plan includes provision for the continuance of work under these schemes.

Other areas, where Acacia occurs, scattered in plantations mainly of bluegum, will be re-planted at felling with the latter species.

87. The experimental plantations at Snowdon, Aramby and Keti, the new plantation on Dodabetta and at Blackbridge, and the plantations now being raised on acacia areas, will of course be treated as high forest. Thinnings will be necessary, and these will be prescribed.

Formation of Working Circles.

88. For convenience and continuity of record the existing division into blocks and compartments will, generally, be preserved. Subdivision of compartments will be necessary in a few cases; and in a few others where the retention of old compartment numbers is not of importance for purposes of record, it has been found convenient to make a re-arrangement (e.g., Rallia).

89. The following working circles will be formed:—

(1) The Coppice Working Circle.
(2) The Coppice with standards Working Circle.
(3) The Hardwood Eucalyptus Working Circle.
(4) The Miscellaneous Working Circle.

90. *To the Coppice Working Circle* will be allotted—

(1) all areas under bluegum except those destined for treatment as coppice-with-standards (Muthinad Devashola and Dharma tope) or as High Forest (Aramby Block IV), and

(2) areas under Acacia and Calitris destined for conversion to bluegum.

This working circle will contain the following felling series:—

(1) The Aramby Felling Series.
(2) The Cairnhill Felling Series.
(3) The Governorshola Felling Series.
(4) The Snowdon Felling Series.
(5) The Coonoor Felling Series.
(6) The Teppakutchi Felling Series.
(7) The Rallia Felling Series.

91. To the Coppice with Standard Working Circle will be allotted—

Muthinad Plantation.
Devashola Plantation.
Dharma Tope Plantation.

92. To the Hardwood Eucalyptus Working Circle will be allotted—

(1) All areas under Hardwoods.
(2) Acacia areas destined for conversion to Hardwoods.

93. To the Miscellaneous Working Circle will be allotted—

(1) The small area of Eucalyptus globulus High forest in Aramby (Block IV).
(2) All areas of conifers and miscellaneous exotics not destined for conversion.
(3) Shola and grass areas not included in the other working circles.

94. A detailed statement showing the constitution of each working circle is given in Appendix III and the place occupied by each plantation in the scheme of working is shown in Appendix I (*a*).

Working Plan Period and Necessity for Revision.

95. Prescriptions are made for a period of ten years from 1928–29 inclusive. In drawing up the various tables of fellings for the coppice working circle it has been necessary to consider the full period of the rotation (20 years) and as details have been worked out they are given in the appropriate place. Should there be no great change in conditions during the next ten years there is no reason why the tables given should not be followed for the full period of the rotation.

96. In the case of the Hardwoods however revision will be necessary in 1938 when more may be known about their usefulness as timber. Fresh prescriptions for thinning, etc., will also be required by then.

CHAPTER II.—WORKING PLAN FOR THE COPPICE WORKING CIRCLE.

General Constitution of the Working Circle and Character of the Vegetation.

97. To this working circle are allotted all areas under bluegum with the exception of plantations of Muthinad, Devashola and Dharma tope, and of the small Block IV in Aramby.

98. The more accessible parts of the area of this working circle carry crops of bluegum coppice of all ages up to about 20 years. These have been under regular working for a long period. Of such areas Aramby, Cairnhill and Coonoor Peak are typical.

The more remote plantations such as Governor shola and Rallia have been worked in a much more irregular manner, and in some cases not at all, and the crop varies from bluegum high forest from 40 to 60 years old, through coppice (of varying ages) with standards (of varying numbers per acre) to simple coppice.

Other areas again carry a younger stand of bluegum, not yet coppiced, planted within the past few years on felled acacia areas. In such cases there is usually a strong regrowth of Acacia dealbata forming an understorey to the bluegum.

99. Small areas of Acacia and Calitris, destined for conversion to bluegum are included in the area of the working circle, and so are patches of shola grass and swamp within or adjoining the compartments allotted to it.

100. A detailed statement of blocks and compartments in the Coppice Working Circle is given in Appendix III. A summary of it is given below :—

Statement showing the constitution of the Coppice Working Circle.

Felling Series.	Area planted with			Total planted area.	Swamp and grass.	Shola.	Total.
	Bluegum.	Acacia.	Other species				
	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	ACS.
Aramby Felling Series	199·50	..	18·43	217·93	1·28	16·07	235·28
Cairnhill Felling Series	188·94	..	21.33	210·27	4·05	4·14	218·46
Governorshola Felling Series.. ..	170·31	20·90	..	191·21	19·29	4·48	214·98
Snowdon Felling Series	56·49	39·98	..	96·47	38·11	27.99	162·57
Coonoor Felling Series	264·26	10 81	9·56	284 63	7 45	5·11	297·19
Teppakutchi Felling Series	24·75	..	..	24·75	..	..	24·75
Rallia Felling Series	91·35	..	..	91·35	1·27	3·29	95·91
Total ..	995·60	71·69	49·32	1,116·61	71·45	61·08	1,249·14

101. Seven felling series are formed within this working circle. The constitution of each is shown in the statement given in the last paragraph and in greater detail in Appendix III.

Analysis of the Crop.

102. A study of the tables of fellings in paragraphs 124 to 130 will show that the gradation of age classes in the Aramby and Cairnhill Felling Series is almost normal for a 20-year rotation. In the Snowdon and Coonoor Felling Series there is a tendency for the younger age classes to preponderate, while in the Governorshola Felling Series there is an excess of both young and over-mature crops, the middle age classes being almost entirely absent. In the Teppakutchi and Rallia Felling Series almost the whole is overmature.

103. Generally speaking the crops are moderately well stocked. Some compartments however might well carry a denser stand. The planting up of blanks is discussed in paragraph 134, where the necessary treatment is prescribed.

104. Coppice crops have been classified into three qualities, with reference to the growth and stocking. Cairnhill and Coonoor Peak contain most of the I quality crops, Aramby is mainly II quality, except Block III which is almost all III quality. Elsewhere the quality varies according to the success of the original planting, the treatment the areas have since received and the quality of the soil.

Assessment of the quality of each compartment has been made mainly with reference to past actuals of yield, where these are available : elsewhere by eye estimate.

Method of Treatment and Rotation.

105. The method of treatment will be simple coppice. The only point calling for discussion is the settlement of the rotation to be adopted.

106. Mr. Cox discusses this at page 32 of his Working Plan.

107. He dismisses the 'financial' rotation as impossible of calculation for want of data, especially of data concerning the value of the land and the initial cost of formation of the plantations, and confines himself to a discussion of the rotation giving the greatest volume of material per acre per annum. He mentions however that Mr. Troup tried to work out the 'financial' rotation from such figures as were available and that he obtained a provisional result of a rotation of from 15 to 18 years depending on the rate of interest adopted.

108. It is no more possible now than it was formerly to calculate the true financial rotation. It remains therefore to consider the rotation based upon the culmination of the volume yield. For a fuel forest where an increase in quality per unit of volume ceases at a comparatively early age the chances are that the true financial rotation does not greatly differ from the rotation of greatest volume production.

109. When Mr. Cox prepared his working plan in 1913 he had very few reliable figures of simple coppice yields obtained in former fellings. In drawing his volume curve given at page 198 of his working plan he was obliged therefore to rely on the measurement of a comparatively small number of very small sample plots.

110. Referring to the curve Mr. Cox obtained Mr. Troup's remarks—

"It will be seen that the mean annual increment continues to rise up to 25 years of age. Older coppice crops were not available for measurement, but prolonging the curve to 30 years of age, it is seen that there is but a slight further rise. Well stocked 'high forest' crops 30 years old show a considerable fall in the mean annual increment as compared with average coppice crops 25 years old. Hence according to available data we may assume with tolerable accuracy that the rotation which will give the maximum volume of material per acre per annum is 25 years."

111. Mr. Cox however thought it scarcely safe to fix the rotation so high as this (it had previously been ten years). He considered that the data available showed that the former rotation of ten years was far too short, and that 15 years was almost certainly too short. He remarked that after the age of 15 years his volume curve was based on so few actual measurements that it seemed unsafe to rely on it too far. Allowing for the noticeable fall in increment of crops of 30 years and over he thought that the true rotation for the average coppice crop was unlikely to exceed 20 years. In view however of certain practical considerations, which no longer apply he finally adopted a rotation of 15 years after hesitating between this and one of 20 years.

112. Fifteen years have now elapsed since Mr. Cox wrote his plan and many more figures of actual yield are available.

Crop actuals from 64 simple coppice crops (the total *reliable* data available) are given in the statement in Appendix II and are plotted on the curve in that appendix.

113 There is no doubt that Mr. Cox's curve (based on the few data then available) is drawn far too high especially at the higher ages.

114. The curves obtained from the 89 crop actuals (Appendix II) give the following figures for the mean annual increment at different ages :—

I Quality.

—	Age.					
	10	12	14	16	18	20
	C. FT.	C. FT.	C. FT.	C. FT.	C. FT.	C. FT.
Volume per acre stacked	5,700	6,500	7,250	8,000	8,675	9,350
Mean annual increment per acre stacked ..	570	542	518	500	482	467

II Quality.

—	Age.					
	10	12	14	16	18	20
	C. FT.	C. FT.	C. FT.	C. FT.	C. FT.	C. FT.
Volume per acre stacked	4,450	5,150	5,800	6,425	7,025	7,575
Mean annual increment per acre stacked ..	445	429	415	401	390	379

III. Quality.

—	Age					
	10	12	14	16	18	20
	C. FT.	C. FT.	C. FT.	C. FT.	C. FT.	C. FT.
Volume per acre stacked	3,350	3,900	4,425	4,900	5,350	5,800
Mean annual increment per acre stacked ..	335	325	316	306	297	290

Thus in each quality class the mean annual increment has already reached its maximum at ten years, and for the production of the greatest stacked volume per acre per annum a rotation of ten years or less should be adopted.

115. But at the age of 20 years a given stacked volume contains a greater volume of serviceable fuel than the same stacked volume of material from a 10-year old crop. From figures available it is believed that the difference may, at the utmost, amount to 15* per cent between these two ages. Adding 15 per cent to the yields in stacked cubic feet at 20 we get—

—	Quality class.					
	Age.					
	I		II		III	
	10	20	10	20	10	20
Mean annual increment per acre	570	537	445	435	335	335

* Measurements taken since this was written indicate that 15 per cent is an excessive allowance, and that 9 per cent is nearer the mark.

Thus at 20 years as compared with 10 there is still, even making this allowance, a fall in increment, though in the poorer quality classes the fall is very slight. From the point of view of volume production alone a rotation of not more than ten years continues to be the correct theoretical rotation.

116. At ten years however the material, though saleable, does not meet with such a ready demand as material of larger size. Even at 15 years the billets have not reached the size most favoured by the consumer. No figures are available to show that higer prices are actually paid for the larger material, but there is little doubt that it finds a readier sale.

117. It is considered that the 10-year rotation may be definitely ruled out on this score alone. But it is of interest to note what annual sacrifice in stacked volume is involved in adopting a higher rotation Comparing a 10-year rotation with one of 15 years and assuming an annual outturn of 400,000 cubic feet stacked and all the crops to be of the average (II) quality the annual sacrifice would amount to about 32,000 cubic feet stacked or 266 lots having a net value of about Rs. 1,200. An extra 5 annas per lot for the older material would compensate for this loss in volume of outturn.

118. Comparing similarly a rotation of 15 years with one of 20, the sacrifice in stacked volume involved in adopting the longer rotation would be about 28,000 cubic feet or 233 lots having a net value of about Rs. 1,050. It is believed that the higher prices likely to be obtained for the 20-year old material would compensate for this loss.

119. An additional advantage possessed by the 20-year rotation is that during its course a valuable record of crop actuals at the higher ages will be obtained, and these figures we badly need.

120. From the figures now available it seems evident that no rotation longer than this need be considered at present. A rotation of 20 years will therefore be adopted.

An exception to the 20-year rotation will be made in the case of the Rallia Felling Series for two reasons, viz.—

(1) The outturn of this felling series will be converted into charcoal and 20-year old material is on the small size for this.

(2) The outturn from coupes arranged for a 20-year rotation over the available area would be larger than the demand could absorb.

For this felling series therefore a rotation of about 30 years is arrived at—i.e., about one-third of the total area will be worked over during the 10 year period of the plan. A table of fellings is given only for ten years in this case.

Method of Executing the Fellings.

121. Felling and stacking will be carried out departmentally. Fuel will be stacked in 'lots' measuring, when stacked, 8 feet × 5 feet × 3 feet. Before felling, the right to collect bluegum leaves will be auctioned. During felling headload tickets for the removal of wood too small to stack will be sold by the guard in charge of the area. All material down to 2 inches in diameter will be stacked. Billets over 15 inches in diameter will be split. All shola areas included within compartments under felling will be left untouched.

122. In the case of the Rallia Felling Series the whole outturn will be converted into charcoal, departmentally.

Tabular Statement of Fellings.

123. Below are given statements showing the fellings to be made each year in each felling series, with an estimate of the yield which will be obtained. The average annual estimated yield for the 10-year period of the plan, and for the whole period of the rotation are given in the following statement. It will be observed that the average annual cut for the 10-year period of the plan (i.e., the first half of the rotation is slightly below the average for the full rotation an allowance on the side of safety). In Governor shola Felling Series the heavier cutting in the early years is justified by the excess of overmature material.

—	Estimated average annual yield of firewood in lots of 120 cubic feet stacked.						Total.	Estimated average annual yield-Rallia Felling Series.
	Aramby Felling Series.	Cairnhill Felling Series.	Governors shola Felling Series.	Snowdon Felling Series.	Coonoor Felling Series.	Teppakutchi Felling Series.		
For 10-year period of plan.	568	661	740	184	807	100	3,060	400 lots of firewood equivalent to about 6,000 bags charcoal each of 56 lbs.
For whole rotation.	605	677	728	191	847	96	3,144	..

124. Table of fellings for the Aramby Felling Series—

Year.	Block and compartment.	Age at felling.	Quality.	Area.	Estimated yield per acre stacked.	Total estimated yield of each compartment stacked.	Total estimated yield of annual coupe stacked.	Total area of annual coupe.	Remarks.
		YRS.		ACS.	C. FT.	C. FT.	C. FT.	ACS.	
1928-29	II—15	20	I	2·49	9,350	23,281	65,725	..	Calitris area [VII
	II—16	19	III	4·08	5,550	22,644	(= 548 lots)	9·87	3 (a)] to be plan-
	VII— 3 (a)	39		3·30	6,000	19,800	..	..	ted in 1929-30.
1929-30	III—13	21	III	9·64	6,000	57,840	65,750	..	Calitris area [VII
	VII— 3 (b)	40		2·97	3,000	7,910	(= 548 lots)	12·61	3 (b)] to be plan-
1930-31	III— 6	22	III	4·87	6,225	30,316	57,845	..	ted in 1930-31.
	II— 9	21	II	2·54	7,925	20,129	(= 482 lots)	11·11	Calitris area [VII
	VII— 3 (c)	41		3·70	2,000	7,400	..	..	3 (c)] to be plan-
1931-32	II— 8	20	II	1·99	7,600	15,124	62,888	..	ted in 1931-32.
	II—11	20	II	3·43	7,600	26,068	(= 524 lots)	10·30	Calitris area [VII
	II—13	20	III	2·52	5,800	14,616	..	..	4 (a)] to be plan-
	VII— 4 (a)	42		2 36	3,000	7,080	..	..	ted in 1932-33.
1932-33	III— 3	24	III	3·65	6,600	24,090	56,978	..	Calitris area [VII
	II— 2	20	II	3·38	7,600	25,688	(= 475 lots)	9·43	4 (b)] to be plan-
	VII— 4 (b)	43		2·40	3,000	7,200	..	..	ted in 1933-34.
1933-34	II— 4	21	III	5·05	6,000	30,300	73,247	..	
	III—10	21	II	3·64	7,925	28,847	(= 610 lots)	11·04	
	II—14	21	III	2·35	6,000	14,100	..	..	
1934-35	II—18	22	III	8·71	6,225	54,220	80,410	..	
	V— 9	19	I	2·91	9,000	26,190	(= 670 lots)	11·62	
1935-36	II—17	24	III	5 66	6,600	37,356	75,396	..	
	III— 4	21	III	6·34	6,000	38,040	(= 628 lots)	12·00	
1936-37	V— 8	22	III	4·93	6,225	30,689	78,990	..	
	V— 7	23	I	4·69	10,300	48,301	(= 658 lots)	9·62	
1937-38	V— 1	20	II	5·04	7,600	38,304	64,984	..	
	V— 2	20	III	4·60	5,800	26,680	(= 542 lots)	9·64	
1938-39	V— 3	20	III	6·40	5,800	37,120	63,040	..	
	V—12	23	III	4·05	6,400	25,920	(= 525 lots)	10·45	
1939-40	V— 4	20	III	5·37	5,800	31,146	60,842	..	
	V—15	23	III	4·64	6,400	29,696	(= 507 lots)	10·01	
1940-41	III— 8	20	II	4·02	7,600	30,552	83,277	..	
	III— 9	19	III	9·50	5,550	52,725	(= 694 lots)	13·52	
1941-42	V— 5	21	I	5·25	9,650	50,662	1,04,425	..	
	V— 6	20	I	5·75	9,350	53,763	(= 870 lots)	11·00	
1942-43	III— 7	24	III	4·88	6,600	32,208	80,936	..	
	II— 6	20	II	2·45	7,600	18,620	(= 674 lots)	10·45	
	II— 5	21	I	3·12	9,650	30,108	..	..	
1943-44	III— 2	20	II	8·52	7,600	64,752	96,653	..	
	II— 7	21	II	1·58	7,925	12,521	(= 805 lots)	12·65	
	III—12	20	II	2·55	7,600	19,380	..	..	
1944-45	V—13	20	III	3·38	5,800	19,604	62,606	..	
	II—10	20	III	4·32	5,800	25,056	(= 522 lots)	10·15	
	III— 5	19	II	2·45	7,325	17,946	..	..	
1945-46	V—10	20	III	1·61	5,800	9,338	64,760	..	
	II—12	20	II	2·56	7,600	19,456	(= 540 lots)	9·08	
	III—11	19	II	4·91	7,325	35,966	..	..	
1946-47	II— 3	20	I	3·94	9,350	36,839	73,358	..	
	II— 1	19	III	6·58	5,550	36,519	(= 611 lots)	10·52	
1947-48	V—14	21	III	4·24	6,000	25,440	81,077	..	
	III— 1	20	III	4·92	5,800	28,535	(= 676 lots)	12·86	
	V—17 (b)	19	II	3·70	7,325	27,102	..	..	

125. Table of fellings for the Cairnhill Felling Series—

Year.	Block and compartment.	Age at felling.	Quality.	Area.	Estimated yield per acre stacked.	Total estimated yield of each compartment stacked.	Total estimated yield of annual coupe stacked.	Total area of annual coupe.	Remarks.
		YRS.		ACS.	C. FT.	C. FT.	C. FT.	ACS.	
1928–29 ..	II— 7	22	II	5·48	8,200	44,936	59,056	9·01	
	I— 9 (*b*) ii ..	39	..	3·53	4,000	14,120	(= 492 lots)	..	
1929–30 ..	II— 5	20	II	5·57	7,600	42,332	87,948	..	
	II— 9	18	I	3·68	8,700	32,016	(= 733 lots)	12·65	
	I— 9 (*b*) i ..	40	..	3·40	4,000	13,600	..	..	
1930–31 ..	II— 6	18	II	4·00	7,000	28,000	70,407	..	
	II—21	17	I	3·45	8,350	28,807	(= 587 lots)	10·85	
	I— 4 (*a*) i ..	41	..	3·40	4,000	13,600	..	..	
1931–32 ..	II—18	17	I	6·44	8,350	53,774	66,174	9·54	
	I— 4 (*a*) ii ..	42	..	3·10	4,000	12,400	(= 551 lots)	..	
1932–33 ..	II—16	16	I	3·55	8,000	28,400	69,736	..	
	II—17	18	I	3·28	8,700	28,536	(= 581 lots)	10·03	
	I— 4 (*a*) iii ..	43	..	3·20	4,000	12,800	..	..	
1933–34 ..	II—19	18	I	6·44	8,700	56,028	74,828	..	
	I— 4 (*a*) iv ..	44	..	4·70	4,000	18,800	(= 624 lots)	11·14	
1934–35 ..	IV— 8	21	I	12·07	9,650	116,475	(= 971 ,,)	12·07	
1935–36 ..	IV— 7	19	II	11·38	7,350	83,643	(= 697 ,,)	11·38	
1936–37 ..	IV— 6	19	I	11·79	9,000	106,110	(= 884 ,,)	11·79	
1937–38 ..	IV— 4	18	III	11·00	5,350	58,850	(= 490 ,,)	11·00	
1938–39 ..	IV— 5	19	II	8·15	7,350	59,902	(= 499 ,,)	8·15	
1939–40 ..	IV— 3	16	III	9·04	4,900	44,296	(= 369 ,,)	9·04	
1940–41 ..	II—11	22	II	6·75	8,200	55,350	93,627	..	
	II—12	21	II	4·83	7,925	38,277	(= 780 lots)	11·58	
1941–42 ..	II—13	21	II	4·64	7,925	36,772	81,184	..	
	II—15	20	I	4·75	9,350	44,412	(= 677 lots)	9·39	
1942–43 ..	II—14	21	I	3·83	9,650	36,959	113,442	..	
	II— 1	20	I	3·56	9,350	33,286	(= 945 lots)	12·01	
	II— 2	20	I	4·62	9,350	43,197	..	..	
1943–44 ..	II— 3	21	I	4·84	9,650	46,706	90,557	9·53	
	II— 8	20	I	4·69	9,350	43,851	(= 755 lots)	..	
1944–45 ..	II—10	20	I	3·50	9,350	32,725	90,055	11·30	
	IV— 1	19	II	7·80	7,350	57,330	(= 750 lots)	..	
1945–46 ..	IV— 2	20	II	9·70	7,600	73,702	(= 614 ,,)	9·70	
1946–47 ..	I— 3	19	I	10·90	9,000	98,100	(= 817 ,,)	10·90	
1947–48 ..	II— 4	20	II	6·96	7,600	52,896	86,088	10·51	
	II—20	20	I	3·55	9,350	33,192	(= 717 lots)	..	

126. Table of fellings for the Governorshola Felling Series—

Year.	Block and compartment.	Age at felling.	Quality.	Area.	Estimated yield per acre stacked.	Total estimated yield of each compartment stacked.	Total estimated yield of annual coupe stacked.	Total area of annual coupe.	Remarks.
		YRS.		ACS.	C. FT.	C. FT.	C. FT.	ACS.	
1928–29 ..	VI— 1 ..	28	..	10·60	3,500	37,100	85,100	10·60	Remaining trees to be felled.
	I— 2 ..	..	..	11·60	..	48,000	(= 710 lots)	..	
1929–30 ..	VI— 5 ..	39	I	8·70	14,000	121,800	(= 1,015 lots)	8·70	
1930–31 ..	IV— 3 ..	41	II	7·80	12,000	93,600	(= 780 lots)	7·80	Four isolated bits of A. melanoxylon to be left standing.
1931–32 ..	IV— 2 (*a*) ..	42	II	6·20	12,000	74,400	(= 620 lots)	6·20	
1932–33 ..	IV— 2 (*b*) ..	43	II	6·20	12,000	74,400	(= 620 ,,)	6·20	
1933–34 ..	VI— 2 (*a*) ..	32	III	6·40	12,000	76,800	(= 640 ,,)	6·40	Standards much older than 32.
1934–35 ..	VI— 2 (*b*) ..	33	III	6·60	12,000	79,200	(= 660 ,,)	6·60	
1935–36 ..	VI— 3 (*a*) ..	48	I	6·30	15,000	94,500	(= 787 ,,)	6·30	
1936–37 ..	VII ..	43	II	7·51	12,000	90,120	(= 751 ,,)	7·51	
1937–38 ..	VIII— 2 ..	32	III	12·20	8,000	97,600	(= 813 ,,)	12·20	Age very uneven.
1938–39 ..	VIII— 3 ..	32	III	10·35	8,000	84,240	(= 702 ,,)	10·35	
1939–40 ..	VIII— 1 ..	27	III	4·55	7,500	34,125	68,625	8·00	
	V— 1 ..	46	III	3·45	10,000	34,500	(= 572 lots)	..	
1940–41 ..	V— 2 ..	47	III	9·80	10,000	98,000	(= 817 ,,)	9·80	
1941–42 ..	VI— 3 (*b*) ..	22/54	III	6·00	8,000	48,000	92,835	..	
	II— 2 ..	19	II	6·10	7,350	44,835	(= 774 lots)	12·10	
1942–43 ..	II— 1 ..	18	II	7·70	7,000	53,900	(= 449 ,,)	7·70	
1943–44 ..	I— 1 ..	18	II	7·00	7,000	49,000	(= 408 ,,)	7·00	6·6 acres Acacia melanoxylon to be left standing.
1944–45 ..	I— 2 ..	18	II	11·60	7,000	81,200	(= 677 lots)	11·60	
1945–46 ..	III— 1 ..	18	I	12·65	8,700	110,055	(= 917 ,,)	12·65	
1946–47 ..	III— 2 ..	19	I	13·35	9,000	120,150	(= 1,001,,)	13·35	
1947–48 ..	VI— 4 ..	20	I	11·00	9,325	102,575	(= 855 ,,)	11·00	1·6 acres to be left standing as wind belt on southern side.

127. Table of fellings for the Snowdon Felling Series—

Year.	Block and compartment.	Age at felling.	Quality.	Area.	Estimated yield per acre stacked.	Total estimated yield of annual each compartment stacked.	Total estimated yield of annual coupe stacked.	Total area of annual coupe.	Remarks.
		YRS.		ACS.	C. FT.	C. FT.	C. FT.	ACS.	
1928-29 ..	III—1 ..	15	II	3·62	6,100	22,082	(= 184 lots)	3·62	
1929-30 ..	Dodabetta Compartment 5 Dodabetta.	..	III	5·20	7,000	36,400	(= 304 ,,)	5·20	
1930-31 ..	Compartment 6.	..	III	5·20	7,000	36,400	(= 304 ,,)	5·20	
1931-32 ..	III—5 (a) ..	17	II	4·20	6,725	28,245	(= 235 ,,)	4·20	
1932-33 ..	III—5 (b) ..	17	II	4·23	6,725	28,446	(= 237 ,,)	4·23	
1933-34 ..	II—1 (a) ..	17	..	4·00	3,000	12,000	(= 100 ,,)	4·00	
1934-35 ..	II—1 (b) ..	18	..	3·91	3,000	11,730	(= 98 ,,)	3·91	
1935-36 ..	II—2 (a) ..	17	..	3·70	3,000	11,100	(= 92 ,,)	3·70	Acacia.
1936-37 ..	II—2 (b) ..	18	..	3·80	3,000	11,400	(= 95 ,,)	3·80	
1937-38 ..	II—3 ..	19	..	7·67	3,000	23,610	(= 197 ,,)	7·67	
1938-39 ..	II—4 (part) ..	16	..	4·00	3,500	14,000	(= 117 ,,)	4·00	Grass areas to be
1939-40 ..	II—4 (part) ..	17	..	4·00	3,500	14,000	(= 117 ,,)	4·00	planted up
1940-41 ..	II—4 (part) ..	18	..	4·65	3,500	16,275	(= 136 ,,)	4·65	with bluegum.
1941-42 ..	II—5 (part) ..	16	III	4·00	4,900	19,600	(= 163 ,,)	4·00	
1942-43 ..	II—5 (part) ..	17	III	3·44	5,150	17,716	(= 148 ,,)	3·44	
1943-44 ..	II—6 ..	21	III	6·67	6,000	40,020	(= 333 ,,)	6·67	6·93 acres acacia melanoxylon to be left standing.
1944-45 ..	II—8 ..	22	..	5·17	3,500	18,095	(= 151 ,,)	5·17	Acacia.
1945-46 ..	III—3 ..	19	I	4·50	9,000	40,500	(= 337 ,,)	4·50	
1946-47 ..	III—2 (part) ..	19	II	3·58	7,325	26,243	(= 219 ,,)	3·58	
1947-48 ..	III—2 (part) ..	20	II	4·00	7,600	30,400	(= 253 ,,)	4·00	

128. Table of fellings for the Coonoor Felling Series—

Year.	Block and compartment.	Age at felling.	Quality.	Area.	Estimated yield per acre stacked.	Total estimated yield of each compartment stacked.	Total estimated yield of annual coupe stacked.	Total area of annual coupe.	Remarks.
		YRS.		ACS.	C. FT.	C. FT.	C. FT.	ACS.	
1928-29 ..	I—30 ..	16	II	2·06	6,400	13,184	97,534	..	
	I—32 ..	16	I	5·43	8,000	43,440	..	14·87	
	I—33 ..	17	II	4·18	6,725	28,110	(= 813 lots)	..	
	II— 2 (a) ..	38	..	3·20	4,000	12,800	..	..	
1929-30 ..	III— 1 ..	18	II	6·50	7,000	45,500	86,814	13·94	
	I—28 ..	17	II	4·24	6,725	28,514	(= 723 lots)	..	
	II— 2 (b) ..	39	..	3·20	4,000	12,800	..	..	
1930-31 ..	I—35 ..	17	II	6·56	6,725	44,116	82,315	..	
	I—36 ..	15	II	4·19	6,100	25,559	(= 686 lots)	13·91	
	II— 2 (c) ..	40	..	3·16	4,000	12,640	..	..	
1931-32 ..	I—38 ..	15	II	5·19	6,100	31,659	99,195	..	
	III— 2 ..	18	II	7·56	7,000	52,920	(= 827 lots)	14·43	
	I—21 ..	18	I	1·68	8,700	14,616	..	..	
1932-33 ..	I—20 ..	19	II	3·31	7,325	24,246	..	..	
	I—25 ..	19	II	4·43	7,325	32,450	92,061	..	
	I—26 ..	19	II	3·37	7,325	24,685	(= 767 lots)	14·67	
	B shola C-10 ..	16/21	..	3·56	3,000	10,680	..	..	
1933-34 ..	I— 6 ..	16	I	4·68	8,000	37,440	..	..	
	III— 3 ..	18	II	7·81	7,000	54,670	1,00,360	15·24	
	B shola C-11 ..	17/20	..	2·75	3,000	8,250	(= 836 lots)	..	
1934-35 ..	I— 7 ..	16	I	3·31	8,000	26,480	95.580	..	
	III— 4 ..	18	II	8·56	7,000	59,920	(= 796 lots)	14·93	
	B shola C-12 ..	17/18	..	3·06	3,000	9,180	..	..	
1935-36 ..	I— 5 .	18	I	5·00	8,700	43,500	93,961	..	
	III— 5 ..	19	II	6·25	7,325	45,781	(= 783 lots)	12·81	
	B shola C-14 ..	19/20	..	1·56	3,000	4,680	..	..	
1936-37 ..	I— 9 ..	18	I	5·50	8,700	47,850	..	..	
	I—11 ..	18	I	5·19	8,700	45,153	1,03,293	14·12	
	B shola—C-13 ..	20/21	..	1·37	3,000	4,110	(= 861 lots)	..	
	B shola—C-17 ..	19/20	..	2·06	3,000	6,180	..	..	
1937-38 ..	I— 2 ..	64	..	2·37	15,000	35,550	..	..	
		26	II	4·55	9,000	40,950	1,16,945	..	
	I— 4 ..	17	II	5·18	6,725	34,835	(= 975 lots)	..	
	B shola—C-16 ..	20/21	..	1·87	3,000	5,610	..	13·97	2·37 acres coppice with standards.
1938-39 ..	I— 3 ..	18	II	8·18	7,000	57,260	98,283	..	
	I— 8 ..	19	II	4·81	7,325	35,233	(= 819 lots)	..	
	B shola—C-18 ..	22/26	..	1·93	3,000	5,790	..	14·92	
1939-40 ..	I—10 ..	20	I	6·56	9,325	61,172	1,03,118	..	
	I—15 ..	18	I	3·68	8,700	32,016	(= 859 lots)	..	
	B shola—C-15 ..	22/23	..	3·31	3,000	9,930	..	13·55	
1940-41 ..	I—12 ..	18	I	5·06	8,700	44,022	90,524	..	
	I—16 ..	19	II	3·06	7,325	22,414	..	..	
	I—17 ..	21	II	1·62	7,925	12,838	(= 754 lots)	..	
	B shola—19 ..	21/23	..	3·75	3,000	11,250	..	13·49	
1941-42 ..	I—14 ..	18	II	3·43	7,000	24,010	1,04,880	..	
	I—18 ..	19	I	7·87	9,000	70,830	(= 874 lots)	13·81	
	B shola—C-24 ..	22	..	2·51	4,000	10,040	..	..	About ½ acre blue gum is considerably older.

Year.	Block and compartment.	Age at felling.	Quality.	Area.	Estimated yield per acre stacked.	Total estimated yield of each compartment stacked.	Total estimated yield of annual coupe stacked.	Total area of annual coupe.	Remarks.
		YRS.		ACS.	C.FT.	C.FT.	C.FT.	ACS.	
1942-43 ..	I—13	19	II	1·93	7,325	14,137	94,047	..	
	I—23	18	II	4·00	7,000	28,000	..	..	
	I—27	19	I	4·25	9,000	38,250	..	14·11	
	B shola—C-22 ..	...	..	2·06	3,000	6,180	(= 792 lots)	..	Acacia.
	C-23 ..	23	..	1·87	4,000	7,480	..	..	
1943-44 ..	I—19	19	I	1·69	9,000	17,010	91,314	..	
	I—24	20	II	7·44	7,600	56,544	(=761 lots)	13·57	
	B shola—C-21 ..	24	..	4·44	4,000	17,760	..	..	
1944-45 ..	I—22	20	I	6·62	9,325	61,731	1,21,131	..	
	I—37	20	I	6·37	9,325	59,400	(= 1,009 lots)	12·99	
1945-46 ..	I—39	20	I	5·87	9,325	54,738	1,16,438	15·37	
	I—40	20	I	5·25	9,325	48,950	(= 970 lots).	..	
	B shola—C-20 ..	28	..	4·25	3,000	12,750	..	..	Acacia.
1946-47 ..	I—I	20	I	6·98	9,325	65,088	96,638	13·29	
	Bleak house C-10 ..	26	..	6·31	5,000	31,550	(= 805 lots)	..	
1947-48 ..	I—29	21	I	5·94	9,650	57,321	1,49,442	..	
	I—31	20	I	4·94	9,325	46,065	(=1,245 lots)	16·94	
	I—34	20	II	6·06	7,600	46,056	..	..	

129. Table of fellings for the Teppakutchi Felling Series—

Year.	Block and compartment.	Age of felling.	Quality.	Area.	Estimated yield per acre stacked.	Total estimated yield of each compartment stacked.	Total estimated yield of annual coupe stacked.	Total area of annual coupe.	Remarks.
		YRS.		ACS.	C.FT.	C.FT.	C.FT.	ACS.	
1928-29 ..	3	..	..	1·12	..	12,000	(= 100 lots)	1·12	
1929-30 ..	4	..	..	1·30	..	12,000	(= 100 ,,)	1·30	
1930-31 ..	5	..	..	1·40	..	12,000	(= 100 ,,)	1·40	
1931-32 ..	6	..	..	1·50	..	12,000	(= 100 ,,)	1·50	
1932-33 ..	7	..	..	1·52	..	12,000	(= 100 ,,)	1·52	
1933-34 ..	8	..	..	1·63	..	12,000	(= 100 ,,)	1·63	
1934-35 ..	9	..	..	1·20	..	12,000	(= 100 ,,)	1·20	
1935-36 ..	10	..	..	1·20	..	12,000	(= 100 ,,)	1·20	
1936-37 ..	11	..	..	1·25	..	12,000	(= 100 ,,)	1·25	
1937-38 ..	12	..	..	1·20	..	12,000	(= 100 ,,)	1·20	
1938-39 ..	13	..	..	1·00	..	12,000	(= 100 ,,)	1·00	
1939-40 ..	14	..	..	1·00	..	12,000	(= 100 ,,)	1·00	
1940-41 ..	15	..	..	1·22	..	12,000	(= 100 ,,)	1·22	
1941-42 ..	16	..	..	1·24	..	12,000	(= 100 ,,)	1·24	
1942-43 ..	17	..	..	1·20	..	12,000	(= 100 ,,)	1·20	
1943-44 ..	18	..	..	1·20	..	12,000	(= 100 ,,)	1·20	
1944-45 ..	19	..	..	1·20	..	12,000	(= 100 ,,)	1·20	
1945-46 ..	20	..	..	1·15	..	12,000	(= 100 ,,)	1·15	
1946-47 ..	1	20	..	1·00	..	7,560	(= 63 ,,)	1·00	
1947-48 ..	2	20	..	1·22	..	7,5[illegible]0	(= 63 ,,)	1·22	

130. Table of fellings for the Rallia Felling Series—

Year.	Block and compartment.	Age of felling.	Quality.	Area.	Estimated yield per acre stacked.	Total estimated yield of each compartment stacked.	Total estimated yield of annual coupe stacked.	Total area of annual coupe.	Remarks.
		YRS.		ACS.	C.FT.	C.FT.	C.FT.	ACS.	
1928-29 ..	Little Rallia—C-2	59	II	2·70	17,000	45,900	(= 382½ lots)	2·70	= 5,737 bags of charcoal.
1929-30 ..	Little Rallia—C-3	60	II	2·70	17,000	45,900	(= 382½ ,,)	2·70	= 5,737 bags of charcoal.
1930-31 ..	Rallia—C-3 ..	58	II	3·00	17,000	51,000	(= 425 ,,)	3·00	= 6,375 bags of charcoal.
1931-32 ..	Rallia—C-4 ..	59	II	2·84	17,000	48,280	(= 402 ,,)	2·84	— 6,030 bags of charcoal.
1932-33 ..	Rallia—C-5 ..	60	II	2·80	17,000	47,600	(= 397 ,,)	2·80	= 5,955 bags of charcoal.
1933-34 ..	Rallia—C-6 ..	61	II	2·90	17,000	49,300	(= 411 ,,)	2·90	= 6,165 bags charcoal.
1934-35 ..	Rallia—C-7 ..	62	II	2·60	17,000	44,200	(= 368 ,,)	2·60	= 5,520 bags of charcoal.
1935-36 ..	Rallia—C-8 ..	63	II	3·10	17,000	52,700	(= 439 ,,)	3·10	= 6,585 bags of charcoal.
1936-37 ..	Rallia—C-9 ..	64	II	3·00	17,000	51,000	(= 425 ,,)	3·00	= 6,375 bags of charcoal.
1937-38 ..	Rallia—C-10 ..	65	II	3·00	17,000	51,000	(= 425 ,,)	3·00	= 6,375 bags of charcoal.

SUBSIDIARY SYLVICULTURAL REGULATIONS.

131. *Planting.*—All Acacia and Calitris areas included in the coppice working circle (except those retained as wind belts or excluded from felling for other reasons noted in the table of fellings) will be planted up with bluegum at an espacement of 9′ × 9′.

The majority of compartments 10 to 24 of Bandyshola which, formerly Acacia, were planted up with bluegum some years ago, are so badly stocked with the latter species that they require more or less complete replanting. They are treated as requiring complete restocking in the statement given below ; but this, of course, does not mean that such areas as are well stocked with bluegum are to be planted again.

132. Statement showing planting to be done in the coppice working circle for 10 years from 1928–29.

Year.	Plantation.	Block and compartment.	Area.	Total area for each year.	Remarks.
			ACS.	ACS.	
1928–29	Aramby	V–17 (*b*)	3·70	..	Where pine failed.
	Snowdon	III–2 (*b*)	1·00	..	About 1 acre of felled acacia.
	Do.	III–3	1·00	..	About 1 acre covered with weeds.
	Baikie	IV–1	1·50	7·20	About 1·50 acres coverd with weeds to be filled up.
1929–30	Aramby	VII–3 (*a*)	3·30	..	Replacing Calitris.
	Cairnhill	I–9 (*b*) ii	3·53	..	Do.
	G'shola	VI–1	10·60	..	Replacing acacia.
	Coonoor Peak	II–2 (*a*)	3·20	20·63	Replacing Calitris and Pine.
1930–31	Aramby	VII–3 (*b*)	2·97	..	Replacing Calitris.
	Cairnhill	I–9 (*b*) 1	3·40	..	Do.
	Coonoor Peak	II–2 (*b*)	3·20	9·57	Replacing Calitris and. Pine. ..
1931–32	Aramby	VII–3 (*c*)	3·70	..	Replacing Calitris.
	Cairnhill	I–4 (*a*)	3·40	..	Do. .. ..
	Coonoor Peak	II– (*c*)	3·16	10·26	Replacing Calitris and Pine. ..
1932–33	Aramby	VII–4 (*a*)	2·36	..	Replacing Calitris.
	Cairnhill	I–4 (*a*) ii	3·10	5·46	Do.
1933–34	Aramby	VII–4 (*b*)	2·40	..	Replacing Calitris.
	Cairnhill	I–4 (*a*) iii.	3·20	..	Do.
	Bandy shola	Compartment 10.	3·56	9·16	Replacing Calitris and filling blanks.
1934–35	Cairnhill	I–4 (*a*) iv	4·70	..	Replacing Calitris.
	G'shola	VI–2 (*b*)	0·70	..	Do acacia
	Bandyshola	Compartment 11.	2·75	8·15	Do. Calitris and filling blanks.
1935–36	G'shola	VI–3 (*a*)	0·45	..	Replacing acacia.
	Bandyshola	Compartment 12.	3·06	3·51	Do.
1936–37	Bandyshola	Compartment 14.	1·56	1·56	Replacing acacia.
1937–38	Bandyshola	Compartment 13.	1·37	..	Replacing acacia.
	Do.	Compartment 17	2·06	3·43	Do.

Average area to be planted annually—7·89 acres.

133. *Planting up blanks in badly stocked areas in bluegum coppice.*—A good deal of money has been spent in the past on planting up blanks in felled compartments, and not seldom there is little to show for the money spent. The coppice grows so rapidly that seedlings planted in small blanks are swamped at once, and are either killed off or linger on in a permanently suppressed condition ; and now that Eupatorium has taken possession of the ground so extensively the matter is more difficult still. To supervise the weeding and tending of a large number of tiny patches of young plants scattered over a number of compartments is practically impossible. It is considered that to attempt to fill up small blanks is a waste of money.

134. Filling large blanks or very badly stocked areas is however a different matter and it is very desirable that this should be done. A list of compartments

requiring attention of this sort is given below. It has sometimes been suggested that coppice crops where the yield is below normal should be entirely restocked with new plants ; but it is calculated that this would be justified financially only where a crop on first quality soil was so sparsely stocked as to give a third quality yield. It is doubtfull whether any compartment is in this condition, though parts of some compartments may be.

In carrying out this work foresight must be exercised and arrangement must be made to avoid stacking lots on areas to be planted up. The importance of keeping the areas weeded until fully established, and of cutting back ruthlessly coppice competing with the seedlings, cannot be emphasized too strongly.

Details of compartments in which blanks are to be planted up during the 10-year period.

Year.	Plantation.	Compartment.	Remarks.
1929-30	Aramby	II—15	A blank above Gambles road opposite 9/10 compartment line. A blank in south-west corner under two standards.
	Marlimund	III— 1	The west half of the part below road needs restocking.
1930-31	Dodabetta	Compartment 5	Blanks throughout.
1931-32	Dodabetta	Compartment 6	Blanks throughout.
	Aramby	II— 9	Blank above Gass road. A smallish blank in bend of Gambles road.
1932-33	Aramby	II— 8	Blanks below path beyond end of Gass road.
	Coonoor Peak	I—38	Patches of Acacia melanoxylon to be replanted.
1933-34	Aramby	II— 2	Blank above Parsons road adjoining compartment 3. Blank below road adjoining compartment 1.
1934-35	Aramby	II— 4	Blank below road at west end of compartment. Blanks beneath standards.
	Coonoor Peak	I— 6	South-east corner very badly stocked.
1935-36	Aramby	II—18	A large part at the east end requires restocking. Smaller blanks at each end of 17/18 compartment line.
1936-37	Aramby	II—17	Blank above Gambles road adjoining compartment 16.
	Coonoor Peak	I— 5	Strip along north-east side of compartment. (Part of this is rocky and unfit for planting).
1937-38	Aramby	V—8	Three blanks along the stream.
	Baikie	IV—6	About one-fourth needs restocking around old charcoal kiln. Smaller blank at cross roads.
	Coonoor Peak	I—9	Large blank between shola area and College upper road. (Part rocky and unfit for planting).
	Do.	I—11	Strip along middle road.

135. *Instructions for planting.*—Bluegum seeds number about 7,500 to the ounce. The species seeds freely every year. Seed ripens in January. The ripe capsules fall to the ground and are collected and dried for about four days, when they burst and the seeds are freed. The burst capsules are then sieved and the seed is collected.

Seed is sown broadcast in nursery beds of good soil mixed with leaf mould, raised slightly above ground level to ensure good drainage. The seed germinates freely in from 10 to 20 days and the seedlings are shaded from the sun. Care must be taken to remove the shade during rain as the young seedlings are very susceptible to 'drip', when about 3 inches high the seedlings should be transplanted into new beds at an espacement of 3 inches ; and when about 8 inches high they are 'mossed' —i.e., the seedlings are taken up from the beds with as much earth round the roots as possible and the roots are loosely wrapped round with moss and tied with grass. Mossed seedlings may be planted at once, or may be kept for several weeks to await

suitable planting weather. If kept, they must be protected from 'drip' and from excessive sun, and must be moved every week to prevent the roots striking through.

For June planting seed should be sown early in January.

The mossed seedlings are planted in pits dug * 1 foot cube. The pits should be dug some months beforehand and filled in just before planting takes place. The grass binding the moss is unwound before planting the seedlings.

The planting distance is 9′ × 9′.

In hollows backward seedlings require shelter from frost in the first year, but only a very small percentage should need protection. A little weeding is necessary in the first year but not thereafter unless strong acacia regrowth is present. The species is extremely easy and cheap to raise and a practically fully stocked area in the first year can almost be guaranteed.

136. *Cost of planting Eucalyptus globulus.*—Current rates are—

Mossing, Rs. 2–8–0 to Rs. 3 per 1,000 seedlings.
Pitting 1 foot cube, Rs. 10 per 1,000 (Rs. 15 in Coonoor range for 1½ foot cube).
Closing pits and planting, Rs. 5 per 1,000.
Shading, Rs. 10 per 1,000.

The total cost of formation of a plantation of Eucalyptus globulus at an espacement of 9′ × 9′ may be put at from Rs. 15 to Rs. 20 per acre according to the amount of weeding and shading necessary.

137. *Other regulations—Grazing.*—This is dealt with for the whole Working Plan area in paragraph 180.

138. *Fire protection.*—This is dealt with for the whole Working Plan area in paragraph 179.

139. *Collection and record of statistics.*—The necessity for recording carefully the yields of all compartments worked is impressed on the officer in charge. In addition to recording outturn in the Control Book it will be found convenient to note in the compartment description (Appendix I) the yield per acre against each compartment as it is felled. For the coppice working circle no other record of statistics is necessary.

140. *Control.*—The following records will be maintained :—

(1) *A control book in the standard form.*—The left hand columns (provisions of the working plan) will be filled up from the tables of fellings given in paragraphs 124 to 130. Separate series of pages should be allotted to each felling series. Care must be taken to record the return from minor articles of outturn such as brushwood and bluegum leaves ; and in the case of the Kallia Felling series the total number of lots burnt during the year and the outturn of charcoal obtained must be recorded in the remarks column.

(2) *A Record of works in the standard form.*—Only one book will be maintained, common to all working circles. It is usual not to record exploitation costs in the record of works, but a record of these may most conveniently find place here and it is prescribed that all expenditure incurred on work of any sort in connexion with the area dealt with shall be recorded in the record of works.

(3) *A Control Journal.*—This also will be maintained for the whole working plan area. Information recorded in the control books and record of works should not be entered in the journal. Remarks will be recorded annually under the following headings. Other headings may be added as occasion arises :

1. Changes in area.
2. Modifications in the Working Plan prescriptions.
3. Deviations from Working Plan prescriptions.
4. Forest offences.
5. Fire protection.
6. Planting.
7. Roads.
8. Buildings.

} Costs not to be entered as these will be found in the record of works. The remarks should be of a general nature, amplifying if necessary, the information given in the record of works. (applies to items 5–8)

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* Formerly pits were dug 1½ feet cube and this practice continues in Coonoor range, but for bluegum 1 foot cube is ample and gives excellent results.

For the Hardwood Eucalyptus 1½ feet cube pits should be dug.

9. Transport.
10. Markets.
11. Yield—A brief abstract from the control book of the total outturn from all working circles.
12. (*a*) Revenue (*b*) Expenditure (*c*) Profit and loss. } An annual financial statement under the headings given in the financial forecast at the end of this plan.
13. Inspection notes.
14. Miscellaneous.

CHAPTER III—WORKING PLAN FOR THE COPPICE WITH STANDARD WORKING CIRCLE.

General constitution of the working circle and character of the vegetation.

141. The areas allotted to this working circle are—

	ACS.
Muthinad plantation	69·55
Devashola plantation	10·05
Dharma Tope plantation	5·36

Muthinad was planted in 1880—83 and remained almost entirely unworked until 1915 when a scheme for thinning the plantation and utilizing the material for the manufacture of charcoal was drawn up and put into effect. Between 1915 and 1927 the whole plantation was worked over. In compartments 1 to 6, worked between 1915 and 1922, the thinning was done only among the dominant and sub-dominant stems, leaving a great deal of suppressed dead and dying material standing. The reason for this was that only a limited demand existed and felling was confined to those stems whose removal would most benefit the main crop. From 1923 and onwards increased demand justified the removal of the suppressed material and compartments 7 to 10, worked during these years, have been much more heavily thinned.

Neglect in the early life of the plantation has left the trees with, for the most part, miserably developed crowns and the ground is encumbered with a mass of suppressed stems. Occasional trees which have been able to assert themselves sufficiently to develop a full crown show superb growth.

Devashola and Dharma Tope plantations are generally similar to Muthinad but neither has ever been worked at all. Devashola was planted in 1880, Dharma Tope in 1876.

Blocks and compartments.

142. In Muthinad the existing division into ten compartments will be retained, but compartments 1 to 5 have been subdivided each into two. The remaining compartments in Muthinad, and the two compartments of Devashola will each require subdivision after the expiry of the ten-year period of this plan. So will Dharma Tope.

Method of treatment.

143. For the reasons given in paragraphs 75 to 87 the method of treatment will be coppice-with-standards. Subdividing each of the existing compartments into two gives 26 coupes; and as the growth of the coppice under standards will be somewhat slower than in the case of simple coppice, a rotation for the coppice of 26 years may be adopted provisionally.

For the standards no rotation can be fixed, and no attempt will be made to provide a gradation of age classes in the standards.

Method of executing the fellings.

144. The object is to grow a few magnificient trees over the coppice, mainly to watch their future development.

Trees with fully developed crowns will therefore be selected and marked for retention. The number of standards to be retained may be put at 20 per acre, and these must be even spaced over the area. If 20 well developed trees cannot be found weedy stems are not to be marked to make up this number: there is no prospect of such stems ever developing into well grown trees.

With the exception of the marked standards all growth will be felled and stacked as three feet billets.

145. Tabular statement of fellings to be made during the ten year period of the plan—

Year.	Plantation and compartment.	Area.	Estimated yield per acre—stacked cubic feet.	Estimated yield of coupe—stacked cubic feet.
		ACS.		
1928-29	Muthinad C. 1 (*a*)	3·50	14,000	49,000=408 lots.
1929-30	,, 1 (*b*)	3·77	14,000	52,780=440 ,,
1930-31	,, 2 (*a*)	3·50	14,000	49,000=408 ,,
1931-32	,, 2 (*b*)	2·52	14,000	35,280=294 ,,
1932-33	,, 3 (*a*)	3·10	14,000	43,400=362 ,,
1933-34	,, 3 (*b*)	2·67	14,000	37,380=311 ,,
1934-35	,, 4 (*a*)	3·20	14,000	44,800=373 ,,
1935-36	,, 4 (*b*)	3·10	14,000	43,400=362 ,,
1936-37	,, 5 (*a*)	3·70	14,000	51,800=432 ,,
1937-38	,, 5 (*b*)	3·77	14,000	52,780=440 ,,

Other Regulations.

146. *Planting.*—None will be necessary.

147. *Grazing.*—This is dealt with for the whole working plan area in paragraph 180.

148. *Fire protection.*—This is dealt with for the whole working plan area in paragraph 179.

149. *Control.*—The following records will be maintained :—

(1) *A Control book* in the standard form. The number of standards retained should be noted.

(2) *A Record of works.*—(Common to all working circles—see paragraph 140).

(3) *A Control journal.*— Do.

CHAPTER IV.—WORKING PLAN FOR THE HARDWOOD EUCALYPTUS WORKING CIRCLE.

General Constitution of the Working Circle and Character of the Vegetation.

150. The areas allotted to this working circle are

Aramby block VI.
Snowdon block I.
Keti plantation.
Dodabetta plantation compartments 1 to 4.
Blackbridge hardwood plantation.
Bandyshola compartments 1 to 9 and 25 to 30.
Springfield plantation.
Bleakhouse plantation compartments 1 to 9.
Bingham brooklands and Lascelles.

151. All the areas under hardwoods are at present in their infancy, the three experimental plantations of Aramby (block VI), Snowdon (block I) and Keti, dating from 1910—12 being the oldest. In each of these three plantations eight different species were tried, viz.—

Eucalyptus pillularis.	Eucalyptus paniculata.	Eucalyptus hemiphloia.
,, punctata.	,, propinqua.	,, crebra.
,, eugenoides.	,, acmenoides.	

It was intended to plant a ninth species (Eucalyptus siderophloia) but there was a mistake made in the supply of seed from Australia and the area planted as Eucalyptus siderophloia is really Eucalyptus crebra.

The above list gives the species in order of merit as regards growth. Future planting will be confined to the first three species in the list. The last two may be written down definitely as failures.

152. The Hardwood plantations of Dodabetta and Blackbridge were formed between 1922 and 1924 on grass land soils in very exposed situations. The former is well stocked and the growth is good. The latter, on excessively barren soil, is very open. The species planted are Eucalyptus eugenoides and Eucalyptus punctata at Dodabetta and Eucalyptus paniculata at Blackbridge.

153. The remaining areas are acacia plantations which have been felled and planted up with hardwoods or areas still carrying a crop of acacia which await this treatment. The following statement gives details of acacia areas already converted:—

Year of planting.	Area planted.	Extent.	Species planted.	Espacement.	Remarks.
		ACS.			
1924–25	Bandyshola C. 1	2·94	Eucalyptus eugenoides	6′ × 6′	The compartments are with the exception of a few small blanks practically fully stocked and should require no treatment until thinning becomes necessary. But the acacia regrowth must be watched and is to be cut or broken back if it shows signs of competing with the Eucalyptus.
	,, 2	1·94	Eucalyptus paniculata.	6′ × 6′	
	,, 8	5·56	Eucalyptus punctata..	6′ × 6′	
	,, 9	3·19	Do.	6′ × 6′	
1925–26	Bandyshola 3	3·37	Eucalyptus eugenoides	6′ × 6′	
	,, 4	3·56	Do.	6′ × 6′	
	,, 5	1·81	Eucalyptus eugenoides and punctata.	6′ × 6′	
	,, 6	2·88	Eucalyptus eugenoides	6′ × 6′	
	,, 7	1·75	Do.	6′ × 6′	
1926–27	Bandyshola 25	2·72	Eucalyptus paniculata.	9′ × 9′	These compartments are well stocked but require further tending and the replacement of a few casualties. About one acre of C. 28 is planted with cryptomeria japonica 6′ × 6′.
	,, 26	2·75	Eucalyptus eugenoides	9′ × 9′	
	,, 27	1·93	Do.	9′ × 9′	
	,, 28	5·80	Do.	9′ × 9′	
	Bingham 1	5·00	Do.	6′ × 6′ Growth patchy.	
1927–28	Bandyshola C. 29	2·44	Eucalyptus punctata..	9′ × 9′	Well stocked but require further tending and filling a few blanks.
	,, 30	3·25	Eucalyptus paniculata.	9′ × 9′	
	Springfield 1	5·25	Eucalyptus punctata..	9′ × 9′	
	Brooklands 2	5·00	Eucalyptus eugenoides	6′ × 6′	Fairly well stocked. Blanks to be filled.

154. *Method of treatment.*—The areas will be treated on the assumption that the crops will be grown as high forest for the production of timber. The question of the rotation need not be considered at the present stage. Should it later be found that these species are not worth growing as timber they can be managed for the production of fuel under the system of simple coppice. This point can be considered at the next revision.

155. *Tabular statement of fellings to be made.*—There will, of course, be no main fellings during the period of this plan. Thinnings are dealt with later.

Details of felling of acacia areas destined for conversion to hardwoods are given in the following table:—

Year of felling.	Area to be felled.	Extent.	Estimated yield per acre.	Estimated yield from each area.	Remarks.	
		ACS.	CFT. ST.	CFT. ST.		
1928–29	Springfield C. 4	5·75	4,000	23,000	359 lots.	547 lots.
	Springfield C. 5	5·75	3,500	20,125		
	Brooklands, 4	5·00	4,500	22,500	188 lots.	
1929–30	Bleakhouse C. 1	7·62	3,500	26,670	222 lots.	442 lots.
	Brooklands C. 5	5·80	4,500	26,100	220 lots.	
1930–31	Bleakhouse C. 2	6·37	3,500	22,295	186 lots.	374 lots.
	Brooklands C. 6	5·00	4,500	22,500	188 lots.	
1931–32	Bleakhouse C. 3	6·20	3,500	21,700	181 lots.	309 lots.
	Brooklands C. 7	3·40	4,500	15,300	128 lots.	
1932–33	Bleakhouse C. 4	4·43	3,500	15,505	129 lots.	301 lots.
	Brooklands C. 8	4·60	4,500	20,700	172 lots.	
1933–34	Bleakhouse C. 5	5·37	3,500	18,795	157 lots.	337 lots.
	Brooklands C. 9	4·80	4,500	21,600	180 lots.	
1934–35	Bleakhouse C. 6	5·68	3,500	19,880	166 lots.	350 lots.
	Brooklands C. 10	4·90	4,500	22,050	184 lots.	
1935–36	Bleakhouse C. 7	4·75	3,500	16,625	138 lots.	325 lots
	Lascelles C. 11	6·40	3,500	22,400	187 lots.	
1936–37	Bleakhouse C. 8	4·56	3,500	15,960	133 lots.	266 lots
	Bleakhouse C. 9	4·56	3,500	15,960	133 lots.	

Average annual outturn.—Coonoor for nine years, 200 lots. Ootacamund for eight years, 181 lots

156. *Thinnings.*—Thinnings which have already been made in the hardwood plantations of Keti, Aramby and Snowdon are noted in the compartment descriptions in Appendix I.

Few definite prescriptions for future thinning can be made at present, but it is laid down that the following compartments shall be thinned in the year noted against each :—

1928–29,	Snowdon,	block I,	compartment 2	...	(Eucalyptus pillularis)
1929–30	,,	,, I,	compartment 2	...	(Eucalyptus eugenoides).
1930–31,	Aramby	,, VI,	compartment 1	...	(Do.).
1931–32,	Snowdon	,, I,	compartment 5	...	(Eucalyptus acmenoides).
1932–33,	Aramby	,, VI,	compartment 5	...	(Do.).

157. The following compartments will be examined in detail by the District Forest Officer in the year noted against each. The District Forest Officer will submit to the Conservator his recommendations regarding thinning requirements of the compartments examined, and thinnings decided upon will be carried out in the year following :—

1932–33	Army, block. VI,	compartment	9.
	Dodabetta	,,	1.
	Bandyshola	compartments	1, 2, 8 and 9.
1933–34	Snowdon, block I	compartment	9.
	Dodabetta	,,	2.
	Bandyshola	compartments	3 to 7.
1934–35	Aramby, block VI	compartment	6.
	Snowdon ,, I	,,	4.
	Keti	,,	5.
	Dodabetta	compartments	3 and 4.
	Bandyshola	,,	25 to 28.
1935–36	Bandyshola	,,	29 and 30.
	Springfield	compartment	1.
	Brooklands	,,	2.
1936–37	Springfield	compartments	2 and 3.
	Brooklands	compartment	3.

SUBSIDIARY SYLVICULTURAL REGULATIONS.

158. *Planting.*—The acacia areas felled in Springfield and Bleakhouse in Coonoor range and in Brooklands and Lascelles in Ootacamund range will be planted with hardwoods in the year after felling. The following statement shows the areas to be planted each year and the species selected for planting :—

Year of planting.	Area to be planted.	Extent.	Total extent of year's planting area.	Species selected for planting.	Espacement.
		ACS.	ACS.		FEET.
1928–29	Springfield C. 2 ..	5·25	16·67	Eucalyptus eugenoides ..	9 × 9
	Do. C. 3 ..	5·82		Do. ..	9 × 9
	Brooklands C. 3 ..	5·60		Do. ..	6 × 6
1929–30	Springfield C. 4 ..	5·75	16·50	Eucalyptus pillularis ..	9 × 9
	Do. C. 5 ..	5·75		Do. ..	9 × 9
	Brooklands C. 4 ..	5·00		Do. ..	6 × 6
1930–31	Bleakhouse C. 1 ..	7·62	13·42	Eucalyptus pillularis ..	9 × 9
	Brooklands C. 5 ..	5·80		Do. ..	6 × 6
1931–32	Bleakhouse C. 2 ..	6·37	11·37	Eucalyptus pillularis ..	9 × 9
	Brooklands C. 6 ..	5·00		Do. ..	6 × 6
1932–33	Bleakhouse C. 3 ..	6·20	9·60	Eucalyptus pillularis ..	9 × 9
	Brooklands C. 7 ..	3·40		Do. ..	6 × 6
1933–34	Bleakhouse C. 4 ..	4·43	9·03	Eucalyptus punctata ..	9 × 9
	Brooklands C. 8 ..	4·60		Do. ..	6 × 6
1934–35	Bleakhouse C. 5 ..	5·37	10·17	Eucalyptus punctata ..	9 × 9
	Brooklands C. 9 ..	4·80		Do. ..	6 × 6
1935–36	Bleakhouse C. 6 ..	5·68	10·58	Eucalyptus punctata ..	9 × 9
	Brooklands C. 10 ..	4·90		Do. ..	6 × 6
1936–37	Bleakhouse C. 7 ..	4·75	11·15	Eucalyptus punctata ..	9 × 9
	Lascelles C. 11 ..	6·40		Do. ..	6 × 6
1937–38	Bleakhouse C. 8 ..	4·56	9·12	Eucalyptus punctata ..	9 × 9
	Do. C. 9 ..	4·56		Do. ..	9 × 9

Average annual planting area = 11·76 acres.

159. *Instructions for planting.*—The Hardwood Eucalyptus are more difficult to raise than Eucalyptus globulus on account of (1) the much lower germinating powers of the seed, (2) the greater susceptibility to damage by ground frost of the seedlings, and (3) their slower growth, especially in the first year or two.

The best results have been obtained as follows :—

Seed is sown broadcast in seed-boxes filled with a mixture of good soil and leaf mould which has been sterilized by heating on sheets of corrugated iron. The seed-boxes are placed in a glass forcing frame and are watered moderately. Germination takes place in about 7 to 10 days. When about 4 inches high seedlings are pricked out in other boxes and are still kept under glass. When about 8 inches high they are mossed in the same way as bluegum seedlings. Thereafter the procedure is the same as for bluegum, except that shading of backward seedlings is necessary to a greater extent, that more casualties are to be expected and that on account of the less hardy nature of the seedlings 1½ feet cube pits are advisable in place of the 1 foot cube pits prescribed for bluegum.

In Coonoor range an espacement of 9 feet × 9 feet is prescribed. In Ootacamund range where the soil on which the plantations are formed is poorer, the situations more exposed and the elevation greater an espacement of 6 feet × 6 feet should be adopted.

For June planting, seed should be sown in the boxes not later than the middle of December.

For planting 9 feet × 9 feet the cost may be put at the same rate as for bluegum for original planting (see paragraph 136), but very considerably greater expenditure on subsequent tending and replacing casualties is to be expected. For 6 feet × 6 feet planting the expenditure is of course proportionately greater.

Other Regulations.

160. *Grazing.*—See paragraph 180.

161. *Fire protection.*—See paragraph 179.

162. *Collection of statistics.*—Permanent sample plots are being laid out by the Forest Research Officer.

163. *Control.*—Yield from thinnings will be recorded in a Control Book in the standard form.

The Record of Works and Control Journal are common to all working circles.

Note.—Mature trees of some of the hardwood species grown in the plantations are to be found in various plantations (e.g., Coonoor peak, Sims park, etc.). It is desirable that specimens should be sought out, carefully identified with the species in the plantations, felled, sawn and sent for scientific testing. Reliable information might also be sought from Australia regarding the present local opinion of the timber of the species in question. It is important that it should be decided definitely whether or not the trees are worth growing for timber, before they become too big to work satisfactorily for firewood.

CHAPTER V.—WORKING PLAN FOR THE MISCELLANEOUS WORKING CIRCLE.

164. To this working circle are allotted (1) areas of grass and shola, other than those contained in compartments allotted to other working circles, (2) areas under miscellaneous conifers and other species which are maintained as objects of interest, (3) a few areas of Acacia melanoxylon retained mainly for æsthetic reasons, and a small area of Eucalyptus globulus high forest (Aramby block IV). Very little needs to be done in any of these areas during the period of this plan. What remarks are necessary are made below.

165. *Aramby block IV.*—No further thinning will be required during the period of this plan. The coppice undergrowth will be harvested in 1937–38. Measurements of the numbered trees will be recorded in the Sample Plot Register.

166. *Aramby block I.*—This contains only shola and grass. It will remain unworked.

167. *Aramby Block V, compartments* 16 *and* 17 (*a*).—The small patch of Cryptomeria japonica in compartment 16 will require no treatment. In compartment 17 (*a*) casualties of Cryptomeria japonica will be replaced in 1928 as there are plants in the nursery: thereafter no casualties are to be replaced. Tending in the young Cryptomeria will be necessary in 1928. In 1933 compartment 17 (*a*) will probably require a clearing of Calitris in the interest of the Cryptomeria japonica, and possibly a light thinning in places among the Cryptomeria.

168. *Aramby Block VII, compartments* 1 *and* 2.—These will be offered to the Madras Forest College for instructional purposes.

169. *Cairnhill Block I* [excluding compartment 3 and compartment 4 (*a*) i—iv and compartment 9 (*b*) i and ii].—This contains 0·41 acre of Acacia melanoxylon and 50·41 acres of miscellaneous conifers, as well as considerable areas of shola and grass. The whole will remain closed to working during the ten-year period of this plan.

170. *Cairnhill Block II, compartments* 22 *and* 26.—These small patches of Cryptomeria japonica will be examined in 1935 and any thinning found necessary will be carried out.

171. *Cairnhill Block III.*—Efforts should be made to identify the unknown species of Eucalyptus. Labels will be repainted annually. The area will remain unworked.

172. *Andy* (*Block IV*), *compartment* 1.—This is Acacia melanoxylon. It will not be worked, but dead trees should be extracted if a chance is seen of being able to do this at a profit.

173. *Hunt Coverts* will remain closed to working.

174. *Snowdon Block II, compartment* 7.—Shola and grass will remain closed to working.

175. *Coonoor Peak Block II* (*Teneriffe*), *compartment* 1.—These conifer and casuarina areas will remain unworked.

176. *Sims Park.*—The plots of exotics will be thinned if occasion arises during the period of the plan. Labels will be repainted annually.

177. *Tent Hill* will receive no treatment.

178. *Rallia Compartments* 12 to 16.—The possibility of taking a road into the conifer area on Rallia from the saddle about three-fourths of a mile west of the Peat Bog toll gate on the Wellington Road must be examined. If this could be done at a reasonable cost the conifer area should be exploited and replaced by bluegum. Until a road is made the area must remain unworked.

CHAPTER VI.

Miscellaneous Regulations.

179. *Fire protection.*—Serious fires are of very rare occurrence and fire is not a very serious menace. Generally speaking, Teppakutchi plantation probably suffers more than any other, from fires spreading from the adjacent patta lands. In the past fires frequently crossed into Aramby from the Marlimund catchment area. These have become much more rare in recent years, and no special precautions are now necessary at this point.

There is however danger of considerable material loss if a ground fire spreads into a compartment containing stacked fuel, and all such compartments should be specially protected by having the compartment lines scraped perfectly clean before the middle of January, and kept clean throughout the fire season by the beat guard.

Plantations of acacia, and those having a strong acacia undergrowth may be considered to be more or less immune to fire.

Most of the other plantations are surrounded by a scraped 6 feet line. These lines will be re-scraped annually before the middle of January. In addition, the following precautions are prescribed.

Cairnhill.—The grass land on the western side, above the Grant-Duff Road will be burnt annually by subordinates early in the season.

Baikie.—The grass and gorse on the south-east side of the plantation will be burnt outwards by subordinates.

Governor's shola group.—A belt of grass not less than 10 yards wide will be burnt round Blocks I, II, IV and V and above Block VII. As this is more than the subordinates themselves can do two fire patrols will be employed to assist them during the fire season.

The original Governor's shola extended from Sheffield Corner to Hungerford. It is slowly growing up again in the blanks between the plantations; Todas should therefore be prevented from burning the scrub and bracken on both sides of the Governor's Shola Road.

Snowdon.—The grass slopes of Snowdon Hill round the hardwood plantation of Block I will be burnt early in the season. This not only protects the plantation, but meets a grievance of the Todas of Kodappamund.

Muthinad.—A belt not less than 10 yards wide will be burnt by the Guard, early in the season, on the grass at the top edge of the plantation.

Hunt Coverts.—A strip round each will be burnt early in the season by the Guard.

Rallia, Little Rallia and Newman.—The grass round the plantations will be burnt at least 10 yards wide by subordinates assisted by one fire patrol.

180. *Grazing.*—All the plantations are, and will continue to be closed to grazing, but the following minor concessions which have been allowed for many years, will continue.

(1) The Todas of Kandalmund will be allowed to graze their buffaloes in the Aramby Swamp.

(2) The Todas of Kodappamund will be allowed to graze their buffaloes on the grass lands of Snowdon Hill (mostly, as a matter of fact, outside the Working Plan area).

(3) Cattle sheltering in the five Jackal Plantations (Hunt Coverts) will not be molested, provided they are covered by permits.

181. *Buildings.*—No new buildings are required. A list of buildings connected with the area under this plan is given in Appendix IV.

182. *Roads.*—The investigation of the possibility of taking a road into the conifer area on Rallia Hill is prescribed in paragraph 178. Beyond this no new road construction will be necessary during the period of this plan, but when Dharma Tope and Devarshola come under working some small expenditure will be involved in improving the existing paths.

A list of forest roads serving the areas dealt with in this working plan will be found in Appendix IV.

183. *Sample plots and trees.*—The following sample trees and plots will be measured annually and the figures will be recorded in the Sample Plot Registers :—

(1) Aramby Block IV—Girth measurements of standards.

(2) Frenella Sample Plot in Aramby VII, C. 2.

(3) Cairnhill—Sample trees in Block II, C. 4.

(4) Sample Plot of Cupressus torulosa at Picnic Corner.

(5) Two Pinus longifolia at Bandyshola.

(6) Coonoor Peak—Sample trees reserved.

(7) Sims Park—Miscellaneous sample trees.

The numbers and rings will be repainted at the time of measurement. There is no object in continuing to measure the Sample Plots (thinned and unthinned) in Muthinad.

The Forest Research Officer is laying out permanent sample plots in the Hardwood Plantations.

184. *Acacia bark for tanning.*—At various times samples of bark of Acacia dealbata have been sent for trial. The last occasion was in 1924. It may be taken

as definitely established that this bark cannot be used commercially. Acacia decurrens is now grown privately on a small scale in the Nilgiris, for the production of tanning bark. In our plantations this species occurs only in very small quantities.

185. *Details of charcoal manufacture.*—Octagonal brick kiln 8 feet in diameter and 8 feet in height are used. The firewood is stacked in billets 3 feet in length the lower and upper layers horizontally and the centre layers vertically. Combustion is regulated by flues in the brick work. The top of the kiln is covered by corrugated iron sheeting resting on transverse iron rods. The door way is closed by a sheet of corrugated iron.

The manufacture takes six days of which three are spent in burning and three in cooling.

A kiln holds about 300 cubic feet of wood.

Taking the average of the last three years a lot of 120 cubic feet stacked yields an outturn of 826 lb. of charcoal (14¾ bags of 56 lb. each).

The weight of a 'lot' of firewood varies greatly, but taking it at the approximate figure of 4,000 lb. the outturn of charcoal is 20·65 per cent by weight of the fuel burnt.

The current rates for manufacture are—

	RS.	A.	P.	
Felling	2	0	0	per lot of 120 cubic feet
Shifting to kiln (where necessary)	0	12	0	
Burning	0	4	0	per bag of 56 lb.
Carting to depot	16	0	0	per 100 bags of 56 lb. each.

The cost of manufacture works out as follows, the result of burning one lot of fuel being shown—

	RS.	A.	P.
Felling at 2 per lot	2	0	0
Shifting	0	12	0
* Burning (1 lot—14¾ bags at 4 annas a bag)	3	11	0
Carting (14¾ bags at 16 per 100 bags)	2	5	9
Cost of gunnies (wear on 14¾ gunnies at 1 anna)	0	14	9
Cost and repairs of kilns, and road repairs—say 500 rupees a year distributed over 6,000 bags—on 14¾ bags	1	3	8
Therefore cost of producing 14¾ bags	10	15	2
Cost of producing one bag	0	12	0
Current sale price per bag	1	2	0

The profit per bag is thus 6 annas and the profit on each lot of firewood burnt is approximately Rs. 5–8–6.

186. *Miscellaneous facts relating to Eucalyptus globulus.*—(1) *Bark.*—The following table giving bark thickness at different ages was compiled by Mr. Cox from measurements of 150 trees :—

Girth over bark.	Average thickness of bark.	Average allowance of bark in girth measurements.	Proportional volume of bark to whole stem.
	INCHES.	INCHES.	
Under 6 inches	0·1	0·6	36·0
6 inches to 11 inches ...	0·25	1·6	32·4
1 foot to 1 foot 11 inches ...	0·4	2·5	25·8
2 feet to 2 feet 11 inches ...	0·6	3·8	23·7
3 „ to 3 „ ...	0·8	5·0	22·4
4 „ to 4 „ ...	0·9	5·7	20·0
5 „ to 5 „ ...	1·2	7·5	21·4
6 „ to 6 „ ...	1·3	8·0	19·3
7 „ to 7 „ ...	1·35	8·5	18·0
8 „ and over	1·4	9·0	18·0

(2) *Weight.*—A freshly stacked 'lot' may weigh as much as 4,800 lb. By the time it is suitable for burning the average weight may be taken as 4,000 lb.

* Since the working plan was written the rate for burning has been reduced to 2½ annas per bag.

(3) *Stacked volume.*—Mr. Cox gives ·66 as the reducing factor for stacked unsplit fuel below 9 inches in diameter, and ·80 for unsplit fuel above 9″ in diameter. His figures agree with those obtained recently by Mr. Wimbush and the writer who found for billets ranging from 2″ to 7″ a reducing factor of ·63 and for billets ranging from 2″ to 13″ in diameter a reducing factor of ·72. For the average 20 years old crop which will be the main outturn of the future a reducing factor of ·70 would be applicable for converting stacked volume to solid.

187. *Varieties of Eucalyptus on the Nilgiris.*—Mr. Cox gives a detailed botanical note on these in his working plan. It is too long for reproduction here and may be referred to in Mr. Cox's plan when occasion arises.

CHAPTER VII.

ESTABLISHMENT.

188. No change in the existing establishment is proposed except that it is very strongly recommended that an Assistant Ranger should be permanently allotted to Ootacamund Range, where the ranger cannot devote enough time to the plantations without neglecting his other duties. The Assistant Ranger would replace the Forester at Ootacamund.

The cost of establishment may be calculated as follows allowance being made for suitable proportion of the pay and office expenses of the District Forest Officer and the Range Officers of Coonoor and Ootacamund. There will be no necessity to recalculate these charges annually with every change of personnel. Nothing more accurate would be obtained by doing so, as at least half of the charges are, of necessity, arbitrarily allotted. The figure arrived at below may therefore be adopted as the annual establishment charge in posting the financial statement in the Control Journal. The charge errs, if anything, on the heavy side.

Monthly establishment charges.

	RS.
One Assistant Ranger (whole) (Supernumerary Ranger)	95
One Third-grade Forester (including fixed travelling allowance)	65
Eight Forest Guards at Rs. 21	168
Three watchers at Rs. 14	42
Share of Range Officer, Ootacamund and his office (about one-fifth) ...	60
Do. Coonoor and his office (about one-third)	90
Share of District Forest Officer, and his office (about one-twelfth)	200
Travelling allowance	100
Total monthly charges ...	820

Establishment charges per annum ... ... Rs. 9,840 or say
,, 10,000

CHAPTER VIII.

FINANCIAL STATEMENT AND COST OF THE PLAN.

189. The following statement (paragraph 191) gives an estimate of the average annual revenue and expenditure during the ten-year period of this plan. It takes no account of the cost of formation of the plantations, or of the value of the land. Full allowance (perhaps an excessive allowance) has been made for establishment charges, including a due proportion of the District Forest Officer's pay and office expenses. Interest charges on the capital expenditure on roads and buildings up to and inclusive of 1927–28 are allowed for. It will be observed that municipal taxes constitute a

heavy charge amounting to well over one-third of the average anticipated surplus. The whole question of municipal taxation of forest lands has been placed before Government, whose orders have not yet been received.*

Estimates of selling prices have been placed on the low side, and it is likely that the estimated surplus of about Rs. 2,708 may be exceeded. The heavier surplus of the last year or two have been occasioned by overfelling a state of affairs which the preparation of this plan has brought to light and corrected.

190. *Cost of the plan.*—No expenditure has been incurred on the preparation of this plan.

191. *Financial forecast.*

Expenditure.

	RS.
Felling and stacking—	
Aramby felling series, 568 lots at Rs. 2-2-0.	1,207
Cairnhill felling series, 661 lots at Rs. 2-2-0.	1,405
Governor's shola felling series, 740 at Rs. 2-2-0.	1,572
Snowdon felling series, 184 lots at Rs. 2-2-0.	391
Coonoor felling series, 805 lots at Rs. 3 ..	2,415
Teppakutchi felling series, 100 lots at Rs. 3.	300
Coppice with standards working circle, 383 lots at Rs. 2-2-0.	814
Hardwood Eucalyptus working circle—	
(*a*) Acacia (Ootacamund, 181 lots at Rs. 2-2-0).	385
Accacia (Coonoor, 201 lots at Rs. 3).	603
(*b*) Thinnings, 50 lots at Rs. 2-2-0 ..	106
Carting—	
To Government House, 150 lots at Rs. 4-4-0.	637
To offices, 34 lots at Rs. 5	170
Charcoal manufacture—	
(Including felling and carting) 6000 bags at As. 12 per bag (see paragraph 185).	4,500
Felling contingencies—	
Tools, etc.	150
Roads—	
Maintenance	1,500
Buildings—	
Maintenance	350
Planting—	
(*a*) Coppice working circle about 8 acres at Rs. 15.	120
(*b*) Hardwood working circle about 12 acres at Rs. 39.	360
Tending—	
(*a*) Coppice working circle about 8 acres at Rs. 6.	48
(*b*) Hardwood working circle 12 acres at Rs. 12.	144
Filling blanks—	
In coppice working circle	50
Fire protection	350
Miscellaneous—	
Painting compartments boards, labels, etc.	200
Municipal taxes—	
(Ootacamund, Coonoor and Wellington).	1,750*
Establishment—	
(See Chapter VII)	10,000
Interest on capital—	
Roads	1,790
Buildings	160
Total ..	31,477

Revenue.

	RS.
By sale of firewood—	
By sale of firewood at Rs. 7	3,976
Do. Rs. 7	4,627
Do. Rs. 4	2,960
Snowdown felling series, 150 lots to Government House at Rs. 12-12-0.	1,912
Thirty-four lots to offices, valued at Rs. 13-8-0.	459
Coonoor felling series, 805 lots at Rs. 10.	8,050
Teppakutchi felling series, 100 lots at Rs. 4.	400
Coppice with standards working circle, 383 lots at Rs. 3.	1,149
Hardwood working circle—	
(*a*) Ootacamund, 181 lots at Rs. 3 ..	543
Coonoor, 201 lots at Rs. 9	1,809
(*b*) Thinnings, 50 lots at Rs. 6	300
By sale of charcoal—	
6000 bags at Rs. 1-2-0	6,750
By sale of bluegum leaves	500
Do. brushwood	500
Miscellaneous—	
Sale of trees, for timber, etc., sale of posts and poles.	250
Total ..	34,185

	RS.
Estimated annual revenue	34,185
Do. charges	31,477
Estimated annual surplus ..	2,708

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* Since this was written Government have excluded the greater parts of Cairnhill Snowdon and Doddabetta plantations from the municipal limits of Ootacamund. This will mean a considerable reduction in the amount of municipal tax to be paid.

CHAPTER IX.—SUMMARY OF PRESCRIPTIONS.

Working circle.	Prescriptions.	Paragraph.
(1) Coppice Working Circle.	Method of treatment and rotation	105 to 120
	Method of executing fellings	121 and 122
	Tabular statement of fellings	123 to 130
	Subsidiary sylvicultural regulations	131 to 136
	(1) Planting	
	(2) Tabular statement of planting in Coppice Working Circle.	
	(3) Planting up blanks in bluegum coppice areas.	
	(4) Filling of large blanks or badly stocked areas.	
	(5) Tabular statement of compartments in which blanks are to be planted up.	
	(6) Instructions for planting	
	(7) Cost of planting Eucalyptus globulus ...	
	Other regulations	137 to 139
	(1) Grazing	
	(2) Fire protection	
	(3) Collection and record of statistics ...	
	Control	140
	(1) Control book	
	(2) Record of works	
	(3) Control journal	
(2) Coppice with Standard Working Circle.	Method of treatment	143
	Method of executing fellings	144
	Tentative statement of fellings	145
	Other regulations	146 to 148
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	(2) Grazing	
	(3) Fire protection	
	Control	149
	Control book, record of works and control journal.	
(3) Hardwood Eucalyptus Working Circle.	Method of treatment	154
	Tabular statement of fellings to be made ...	155
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	(1) Planting—programme of areas	
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	(1) Grazing	
	(2) Fire protection	
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(4) Miscellaneous Working Circle.	Constitution and working of	164 to 178
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(For Appendix I vide bottom of page 41.)

APPENDIX I (*a*).

Area statement of plantations.

Name of plantation.	Area planted (acres).					Grass and swamp.	Shola.	Total area.	Place in scheme of working.
	Eucalyptus globulus.	Other Eucalyptus.	Acacia.	Other species.	Total planted.				
OOTACAMUND RANGE.						ACS.	ACS.	ACS.	
Aramby Block I ..	..	..	..	..	..	20·80	32·96	53·76	Miscellaneous Working Circle.
Do. II ..	66·75	..	..	..	66·75	0·26	..	67 01	Coppice Working Circle
Do. III .	69 89	..	..	..	69·89	..	7·92	77·81	Do.
Do. IV ..	3 17	..	..	..	3·17	..	..	3·17	Miscellaneous Working Circle.
Do. V ..	62·86	..	..	10·88	7 3·74	5·57	15·86	95·17	Coppice Working Circle except compartments 16 and 17 (*a*) which are in Miscellaneous Working Circle.
Do. VI ..	..	39·30	..	..	39·30	34·67	2·89	76 86	Hardwood Working Circle.
Do. VII ..	..	..	..	29·31	29·31	5·32	5·53	40·16	Compartments 3 and 4 Coppice Working Circle. Compartments 1 and 2. Miscellaneous Working Circle.
						9·97*		9·97	
Total, Aramby ..	202·67	39·30	..	40·19	282·16	76·59	65·16	423·91	
Cairnhill Block I ..	10·90	..	0·41	71·74	83·05	36·91	148·97	268·93	Miscellaneous Working Circle except compartments 3, 4 (*a*) and 9, (*b*) which are in Coppice Working Circle.
Do. II ..	98·41	..	..	2·66	101·07	2·46	66·11	169·64	Coppice Working Circle except compartments 22—26 which are in Miscellaneous Working Circle.
Do. III ..	..	6·28	..	..	6·28	1·97	..	8·25	Miscellaneous Working Circle.
Total, Cairnhill ..	109·31	6·28	0·41	74·40	190 40	41·34	215·08	446·82	
Baikie and Madanna ..	79·63	..	..	..	79·63	3·72	0·40	83·75	Coppice Working Circle.
Chowghat Culli ..	18·60	..	6·60	..	25·20	2·80	0·75	28·75	Do.
Culli	13·80	..	..	..	13·80	4·10	..	17·90	Do.
Sheffield	26·00	..	..	..	26·00	..	..	26·00	Do.
Andy	20·20	..	10·05	..	30·25	..	..	30 25	Coppice Working Circle except compartment 1 which is in Miscellaneous Working Circle.
Huppatti	13·25	..	..	..	13·25	0·65	..	13·90	Coppice Working Circle.
Governor's shola ..	43·85	..	13·35	..	57·20	0·85	3 13	61·18	Do.
Anaikal	7·51	..	..	..	7·51	1·11	0·60	9 22	Do.
Chemanguli	27·10	..	..	..	27·10	9·78	..	36·88	Do.
Total, Governor's shola.	170·31	..	30·00	..	200·31	19·29	4·48	224·08	
Snowdon Block I ..	..	50·65	..	..	50·65	..	11·08	61·73	Hardwood Working Circle.
Do. II ..	22·96	..	38·98	..	61·94	29·15	41·68	132·77	Coppice Working Circle except compartment 7 which is in Miscellaneous Working Circle.
Do. III ..	23·13	..	1·00	..	24·13	14·49	..	38·62	Coppice Working Circle.
Total, Snowdon ..	46·09	50·65	39·98	..	136 72	43·64	52·76	233·12	
Bingham, Brooklands and Lascelles.	..	10·00	45·50	..	55·50	..	..	55·50	Hardwood Working Circle.
Hunt coverts ..	..	..	..	5·00	5·00	..	..	5·00	Miscellaneous Working Circle.
Muthinad	69·55	..	..	..	69·55	..	..	69·55	Coppice with Standard Working Circle.
Deva shola	10·05	..	..	..	10·05	..	..	10 05	Do.
Dharma tope ..	5·36	..	..	..	5·36	..	..	5·36	Do.
Doddabetta	10·40	100·99	..	..	111·39	..	..	111·39	Compartments 1—4 Hardwood Working Circle. Compartments 5 and 6 Coppice Working Circle.
Total, Ootacamund range.	703·37	207·22	115·89	119·59	1,146·07	184·58	337·88	1,668·53	

* Road.

Area statement of plantations—*cont.*

Name of plantation.	Area planted (acres).					Grass and swamp.	Shola	Total area.	Place in scheme of working.
	Eucalyptus globulus.	Other Eucalyptus.	Acacia.	Other species.	Total planted.				
COONOOR RANGE.						ACS.	ACS.	ACS.	
Coonoor Peak block I.	191·73	..	..	..	191·73	..	5·11	196·84	Coppice Working Circle.
Do. II.	..	..	..	31·55	31·55	9·82	31·58	72 95	Miscellaneous Working Circle except compartment 2 which is in Coppice Working Circle.
Total, Coonoor Peak ..	191·73	..	..	31·55	223·28	9·82	36·69	269·79	
Blackbridge and rock ..	36·68	..	..	..	36·68	..	..	36·68	Coppice Working Circle.
Bandy shola	29·54	44·89	10·81	1·00	86·24	7 89	..	94·13	Compartments 10—24 Coppice Working Circle and the rest Hardwood Working Circle.
Bleakhouse	6·31	..	49·54	..	55·85	..	..	55 85	Compartment 10. Coppice Working Circle. Rest Hardwood Working Circle.
Springfield	..	5·25	22·57	..	27·82	..	0·87	28 69	Hardwood Working Circle.
Sim's Park	..	9·56	..	..	9·56	32·05	58·71	100·32	Miscellaneous Working Circle. The area classed as other Eucalyptus includes some miscellaneous exotics. The public garden is classed as grass. The area classed as shola is largely interplanted with Acacia and other species.
Tent Hill	..	..	..	11·45	11·45	..	..	11·45	Miscellaneous Working Circle.
Teppakutchi	24·75	..	..	..	24·75	..	..	24·75	Coppice Working Circle.
Newman	26·60	..	..	..	26·60	..	3 29	29·89	Do
Little Rallia	9 40	..	..	..	9·40	..	..	9·40	Do.
Rallia	55·35	..	1·06	46·35	102·76	13·56	..	116·32	Compartments 1 to 11. Coppice Working Circle. Compartments 12 to 16. Miscellaneous Working Circle.
Keti	..	34·07	..	..	34·07	6 31	..	40 41	Hardwood Working Circle.
Blackbridge (Hardwood)	..	17·50	..	..	17·50	..	..	17·50	Do.
Total, Coonoor range ..	380·36	111·27	83·98	90·35	665·96	69 66	99 56	835·18	
Grand total ..	1,083·73	318·49	199·87	209·94	1,812·03	254 24	437·44	2,503·71	

APPENDIX I.

Detailed description of compartments.

Aramby. *Area.*—The total area is 423·91 acres, made up of 202·67 acres of Eucalyptus globulus, 39·30 acres hardwood Eucalyptus, 40·19 acres conifers, 76·59 acres of grass, swamp etc., and 65·16 acres of shola.

The total planted area is 282·16 acres.

Forest settlement.—Notified as reserved forest in G.O. No. 1407, Revenue (Forest No. 182), dated 18th December 1884—B.P. No. 86–F., dated 14th January 1885.

History.—Planted on the site of the old Aramby shola, destroyed by wood-cutters in the early days of settlement on the hills. Planting began in 1863–65 and the areas then planted were the first regular plantation of Eucalyptus on the Nilgiris. In 1870, planting was extended to the neighbouring koolie plantation—(block II of the present Working Plan). Subsequently the grassland between Aramby and koolie plantations was planted up to form a complete block. The conifer plantations date from 1889–90 and the hardwood areas from 1910–12.

Records of early treatment are scanty. In the first rotation fellings appear to have been made sometimes as simple coppice, sometimes as coppice with standards.

Writing in 1895, Mr. Tireman states that the practice was to leave standing the larger trees in a coupe rather than flood the market with unsaleable material. This practice continued through the second and part of the third rotation, but during the past twenty years or so it has been accepted that there is no object in leaving standards over coppice in a forest designed solely for the production of fuel; and with the increased demand of an expanding market nearly all standards have been removed. Except for the small patch of high forest (Block IV) practically all bluegum areas are now simple coppice.

Compartments.—A detailed description of compartments follows.

Aramby Block I.

The block is not divided into compartments. It is allotted to the Miscellaneous Working Circle and consists of—

Shola ... 32·96 acres.
Grass ... 20·80 „

Aramby Block II.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Cubic feet stacked per acre.	Remarks.
	ACS.					
1. Eucalyptus globulus coppice.	6·58	Aspect—North-west.	1889-90	14	5,434	Planted 1875-76, 6′×6′.
		Slope—Moderate.				
Grass	0·26	Soil—Shola type, moist, rocky in places.	1899-00	10	4,416	
			1909-10	10	3,483	
	6·84	Crop—Below Parsons road dense, above road open.				
		Quality III.	1927-28	18	..	
2. Eucalyptus globulus coppice.	3·38	Aspect—West	1891-92	16	6,624	Planted 1875-76, 6′×6′.
		Slope—Moderate.	1901-02	10	5,527	
		Soil—Shola type, moist, rocky in places.	1912-13	11	4,680	
		Crop—Stocking fair, shrubby undergrowth.				
		Quality II.				
3. Eucalyptus globulus coppice.	3·94	Aspect—North-west.	1888-89	13	8,788	Planted 1875-76, 6′×6′.
		Slope—Moderate to steep.	1898-99	10	6,550	Records of doubtful value.
		Soil—Shola type, moist and deep, stony in places.	1908-09	10	4,818	
		Crop—Dense.	1926-27	18	8,254	
		Quality I.				
4. Eucalyptus globulus coppice.	5·05	Aspect—North-east.	1891-92	16	4,976	Planted 1875-76, 6′×6′.
		Slope—Steep.	1901-02	10	3,795	
		Soil—Shola type, moist and deep.	1912-13	11	3,620	
		Crop—Fair; a few large standards over the coppice.				
		Quality III.				
5. Eucalyptus globulus coppice.	3·12	Aspect—North-west.	1888-89	13	5,408	Planted 1875-76, 6′×6′.
		Slope—Moderate.	1898-99	10	5,808	
		Soil—Shola type.	1908-09	10	4,917	
		Crop—Fairly dense.	1921-22	13	6,307	
		Quality I.				
6. Eucalyptus globulus coppice.	2·45	Aspect—North-west.	1889-90	14	6,240	Planted 1875-76, 6′×6′.
		Slope—Moderate.	1899-00	10	4,933	Yield in 1899-00 probably included some standards.
		Soil—Shola type.	1909-10	10	4,240	
		Crop—Moderate.	1922-23	13	4,899	
		Quality II.				
7. Eucalyptus globulus coppice.	1·58	Aspect—North-west.	1887-88	12	15,600	Planted 1875-76, 6′×6′.
		Slope—Moderate.	1897-98	10	7,111	No reliance can be placed on these figures.
		Soil—Shola type, moist.	1907-08	10	4,554	
		Crop—Moderate.	1922-23	15	5,620	
		Quality II.				
8. Eucalyptus globulus coppice.	1·99	Aspect—North-west.	1890-91	15	6,336	Planted 1875-76, 6′×6′.
		Slope—Moderate to flat.	1900-01	10	4,818	
		Soil—Very poor, stony.	1911-12	11	4,808	
		Crop—Very rather open.				
		Quality II.				

Aramby Block II—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Cubic feet stacked per acre.	Remarks.
9. Eucalyptus globulus coppice.	ACS. 2·54	Aspect—North. Slope—Gentle to steep. Soil—Shola type, moist rocky in places. Crop—Rather open. Quality—II.	1889–90 1899–00 1909–10	14 10 10	12,032 6,319 5,032	Planted 1875–76, 6′ × 6′. Obviously wrong.
10. Eucalyptus globulus coppice.	4·32	Aspect—North-west. Slope—Steep. Soil—Shola type, moist and deep. Crop—Rather poor. Quality—III.	1886–87 1896–97 1906–07 1924–25	11 10 10 18	10,736 5,890 3,894 5,139	Planted 1875–76, 6′ × 6′. Obviously wrong. Probably included standards.
11. Eucalyptus globulus copice.	3·43	Aspect—North-west. Slope—Very steep. Soil—Shola type, moist and deep. Crop—Fairly dense. Quality—II.	1890–91 1900–01 1911–12	15 10 11	6,501 4,603 4,665	Planted 1875–76, 6′ × 6′.
12. Eucalyptus globulus coppice.	2·56	Aspect—North-west. Slope—Steep. Soil—Shola type, moist and deep. Crop—Growth moderate. Quality—II.	1887–88 1897–98 1907–08 1925–26	12 10 10 18	6,048 5,472 4,306 6,312	Planted 1875–76, 6′ × 6′. Probably included standards.
13. Eucalyptus globulus coppice (with some Eucalyptus sieberiana coppice).	2·52	Aspect—North-west. Slope—Moderate to steep. Soil—Shola type, moist. Crop—Growth moderate. Quality—III.	1891–92 1900–01 1911–12	16 11 11	2,772 4,240 3,809	Planted 1875–76, 6′ × 6′. Obviously wrong.
14. Eucalyptus globulus coppice (with sieberiana).	2·35	Aspect—North-west. Slope—Steep. Soil—Shola type, moist and deep. Crop—Somewhat open. Quality—III.	1891–92 1901–02 1912–13	16 10 11	2,887 4,125 4,416	Planted 1875–76, 6′ × 6′. Records unreliable.
15. Eucalyptus globulus coppice.	2·49	Aspect—North to north-east. Slope—Moderate. Soil—Shola type, moist and deep. Crop—Dense. Quality—I.	1888–89 1898–99 1908–09	12 10 10	9,152 11,715 7,474	Planted 1875–76, 6′ × 6′. Includes standards. Records not reliable.
16. Eucalyptus globulus coppice.	4·08	Aspect—North-west. Slope—Gentle. Soil—Grassland type, poor and shallow. Crop—Thin. Quality—III.	} 1911–12	Not known	..	} These three compartments were planted in 1883–86, 6′ × 6′. Past yields cannot be given owing to doubt about boundaries. Also prior to 1913 they were irregularly worked to meet occasional demand for poles. The crop is poor owing partly to poor soil and partly to fires spreading in from Marlimund catchment area. The blanks need filling up.
17. Eucalyptus globulus coppice.	5·66	Aspect—South to west. Slope—Steep to gentle. Soil—Grassland type, poor and shallow. Crop—Thin. Quality—III.				
18. Eucalyptus globulus coppice.	8·71	Aspect—North-east to south-west. Slope—Gentle to flat. Soil—Grassland type, poor and shallow. Crop—Poor, about an acre completely blank. Quality—III.				

Aramby Block III.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Cubic feet stacked per acre.	
1. Eucalyptus globulus.	ACS. 4·92	Aspect—North-west. Slope—Moderate. Soil—Grassland type, fair. Crop—Thin. Quality—III.	1897–98 1907–08 1927–28	12 10 20	4,422 4,257 6,512	Planted 1885, 6′ × 6′
2. Eucalyptus globulus coppice. Shola.	8·52 0·56 9·08	Aspect—North-west to west. Slope—Gentle. Soil—Grassland type, fair. Crop—Moderate. Quality—II.	1896–97 1906–07 1923–24	11 10 17	4,735 4,719 6,239	Planted 1885, 6′ × 6′.
3. Eucalyptus globulus coppice. Shola.	3·65 0·46 4·11	Aspect—North-west to west. Slope—Gentle. Soil—Grass land type, fair. Crop—Fair. Quality—III.	1898–99 1908–09	13 10	3,564 3,267	Planted 1885, 6′ × 6′
4. Eucalyptus globulus coppice (with some Eucalyptus obliqua).	6·34	Aspect—South to south-east. Slope—Moderate to gentle. Soil—Rich ferruginous loam. Crop—Fair, in east; half fairly thick under growth of Accacia. Quality—III.	1900–01 1911–12	14 10	6,072 3,252	Planted 1886, 6′ × 6′ Figure not reliable. A few large standards still remain after this felling.
5. Eucalyptus globulus coppice.	2·45	Aspect—East. Slope—Gentle. Soil—Moist and deep. Crop—Moderate. Quality—II.	1895–96 1905–06 1925–26	12 10 20	3,056 3,531 6,906	Planted 1883, 6′ × 6′
6. Eucalyptus globulus coppice.	4·87	Aspect—South-east to south-west. Slope—Gentle. Soil—Grassland type, poor. Crop—Rather open. Quality—III.	1899–00 1908–09	13 9	3,888 3,500	Planted 1886, 6′ × 6′
7. Eucalyptus globulus coppice. Shola.	4·88 0.72 5·60	Aspect—North-west. Slope—Gentle. Soil—Grassland type, fair. Crop—Thin. Quality—III.	1893–94 1903–04 1918–19	8 10 15	2,688 3,828 5,053	Planted 1885, 6′ × 6′ Figures not reliable.
8. Eucalyptus globulus coppice. Shola	4·02 6·18 10·20	Aspect—North-west. Slope—Moderate. Soil—Moist, partly shola, partly grassland type. Crop—Medium. Quality—II.	1894–95 1904–05 1919–20	9 10 14	2,623 5,940 10,049	Planted 1885, 6′ × 6′ Figures of no value. The first two fellings left many standards which were removed in the third felling.
9. Eucalyptus globulus coppice.	9·50	Aspect—West. Slope—Moderate to flat. Soil—Grassland type, poor. Crop—Poor. Quality—III.	1897–98 1907–08 1921–22	10 10 14	3,465 2,491 4,433	Planted 1887, 6′ × 6′
10. Eucalyptus globulus coppice.	3·64	Aspect—West. Slope—Gentle. Soil.—Grassland type, poor and shallow. Crop—Moderate. Quality—II.	1901–02 1912–13	14 11	4,933 4,440	Planted 1887, 6′ × 6′

Aramby Block III—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Cubic feet stacked per acre.	Remarks.
11. Eucalyptus globulus coppice.	ACS. 4·91	Aspect—South-west. Slope—Gentle. Soil—Grassland type, poor and shallow. Crop—Open. Quality—II.	1896–97 1906–07 1926–27	9 10 20	3,811 1,419 7,259	Planted 1887, 6′× 6′. Obviously wrong.
12. Eucalyptus globulus coppice.	2·55	Aspect—South-west. Slope—Moderate. Soil—Grassland type, poor and shallow. Crop—Moderate. Quality—II.	1894–95 1904–05 1923–24	7 10 19	2,838 3,811 7,859	Planted 1887, 6′× 6′.
13. Eucalyptus globulus coppice.	9·64	Aspect—South-east to south-west. Slope—Moderate to steep. Soil--Grassland type, poor. Crop—Over 90 per cent of the areas 20 years old in 1928. The rest is 4 years older. Growth poor. Quality—III.	1898–99 1908–09	11 10	3,679 3,696	Planted in 1868 or 1887, 6′×6′.

Aramby Block IV.

Eucalyptus globulus High Forest.	3·17	Not divided into compartments. Area 3 17 acres. Planted 1863—6′×6′. Aspect—South-west. Slope—Gentle. Soil—Moist and deep. Crop—Eucalyptus globulus high forest with underwood of Eucalyptus globulus coppice of varying age. Some of the old trees are somewhat stag-headed.				Thinned twice prior to 1876, and again between 1877 and 1902. Again thinned in 1925–26 yielding 5,526 cubic feet, stacked, per acre.

Aramby Block V.

1. Eucalyptus globulus coppice.	5·04	Aspect—South-west. Slope—Steep to very steep. Soil—Shola type, moist and deep. Crop—A few large standards over the coppice Scattered undergrowth of accacia and shola species. Thin. Quality—II.	1883–84 1893–94 1903–04 1916–17	20 10 10 13	Not known. 5,808 3,960 5,033	Planted 1863, 6′×6′. Thinned in 1877 and twice before that. Has been burnt over several times.
2. Eucalyptus globulus, Eucalyptus obliqua and mixed Eucalyptus coppice.	4·60	Aspect—South-west. Slope—Gentle to steep. Soil—Shola type, moist and deep. Crop—Thin. Quality—III.	1885 86 1895–96 1905–06 1917–18	22 10 10 12	Not known. 5,082 6,204 2,230	Planted 1863, 6′×6′. Standards left including standings. Thinned in 1877 and twice before. Subject to fire.

Aramby Block V—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Cubic feet stacked per acre.	Remarks.
3. Eucalyptus globulus coppice.	ACS. 6·40	Aspect—South-west. Slope—Very steep. Soil—moist and deep, rocky in places. Crop—Very open. Quality—III.	1882–83 1892–93 1902–03 1917–18	19 10 10 15	Not known. 3,267 3,316 4,940	Planted 1863, 6′ × 6′. Thinned in 1877. Standards left. Including standards.
4. Eucalyptus globulus coppice.	5·37	Aspect—West. Slope—Steep. Soil—Shola type, moist and deep, rocky in places. Crop—Rather open. Some accacia undergrowth. Quality—III.	1886–87 1896–97 1906–07 1919–20	23 10 10 13	5,056 6,336 3,564 4,689	Planted 1863, 6′ × 6′. These figures are not reliable. Thinned in 1877.
5. Eucalyptus globulus coppice.	5·25	Aspect—West. Slope—Moderate. Soil—Shola type moist and deep. Crop—Fairly dense. Quality—I.	1887–88 1897–98 1907–08 1919–20	24 10 10 12	14,768 5,791 4,026 6,259	Planted 1863, 6′ × 6′. Thinned 1877. Burnt over in 1911–12. All fellings simple coppice fellings.
6. Eucalyptus globulus coppice. Shola	5·75 1·60 7·35	Aspect—West. Slope—Moderate. Soil—Shola type moist and deep. Crop—Dense. Quality—I.	1884–85 1894–95 1904–05 1920–21	21 10 10 16	Not known. 8,217 7,491 8,690	Planted 1863, 6′ × 6′. Coppice with standards. Simple coppice. Burnt over 1911.
7. Eucalyptus globulus coppice. Shola	4·69 1·02 5·71	Aspect—West. Slope—Gentle. Soil—Shola type moist and deep. Crop—Dense. Quality—I.	1892–93 1902–03 1913–14	29 10 10	6,517 4,339 5,921	Planted, 1863, 6′ × 6′. Probably a thinning. Obviouly wrong.
8. Eucalyptus globulus coppice.	4·93	Aspect—West. Slope—Very gentle to flat. Soil—Shola type, moist and deep. Crop—Growth moderate. Quality—III.	1893–94 1903–04 1914–15	30 10 11	5,134 5,494 3,010	Planted 1863. 6′ × 6′. 336 standards left. Simple coppice.
9. Eucalyptus globulus coppice.	2·91	Aspect—South-west. Slope—Very gentle. Soil—Shola type average. Crop—Good. Quality—I.	1878–84 1893–94 1903–04 1915–16	20 10 10 12	Not known 5,791 5,098 5,828	Planted 1863, 6′ × 6′.
10. Eucalyptus globulus coppice.	1·61	Aspect—East to north-east. Slope—Almost flat. Soil—Grassland type, poor. Crop—Moderate. Quality—III.	1897–98 1906–07 1925–26	15 9 19	3,069 2,470 5,562	Planted 1882, 6′ × 6′. Under Mr. Cox's plan the area was 4·38 acres and 2·77 acres were disforested in 1927 and the present Compartment 10 is the area left after this disforestation. Subject to fire from catchment area.

Aramby Block V—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
11.	ACS.	....	1925-26	Not known.	10,254	Except for a small corner ·20 acres in extent the whole of this compartment was disforested in 1927. This small plot of ·20 acre is therefore added to Mr. Cox's compartment 12 to make compartment 12 under this plan. There is no compartment 11 now. The yield given is for Mr. Cox's compartment 11 area 4·38 acres. Earlier history doubtful. Planted 1886. 6′ × 6′.
12. Eucalyptus globulus coppice.	4·05	Aspect—North. Slope—Moderate. Soil—Semi-shola type. Crop—Moderate. Quality—III.	1884-85 1894-95 1904-05 1915-16	21 10 10 11	Not known 3,605 4,061 4,109	Planted 1863-65, 6′ × 6′. Coppice with standards. Simple coppice. Do. The compartment includes 0·20 acre formerly in compartment 11.
13. Eucalyptus globulus coppice.	3·38	Aspect—North. Slope—Moderate. Soil—Poor. Crop—Fair. Quality—III.	1885-86 1895-96 1905-06 1924-25	21 10 10 19	Not known 3,069 1,699 4,544	Planted 1863-65, 6′ × 6′. Obviously wrong.
14. Eucalyptus globulus coppice (with some Eucalyptus sieberiana)	4·24	Aspect—North. Slope—Gentle. Soil—Poor, grassland type. Crop—Fair. Quality—III.	1899-00 1909-10 1926-27	17 10 17	3,960 3,300 4,169	Planted 1881-85, 6′ × 6′.
15. Eucalyptus globulus coppice (with some Eucalyptus sieberiana).	4·64	Aspect—North to north-west. Slope—Gentle. Soil—Grassland type, poor. Crop—Thin. Quality—III.	1895-96 1905-06 1916-17	13 10 11	1,782 2,271 3,073	Planted 1881-85, 6′ × 6′. Coppice with standards. Simple coppice. The compartment was irregularly worked for poles up to about 1912.
16. Cryptomeria japonica. Swamp .. Grass .. Shola ..	0·51 4·57 1·00 13·24 19·32	Aspect—West to north-west. Slope—Moderate to flat. Soil—Shola type except in swamp and grass. Crop—The small patch of Cryptomeria japonica shows good growth, being on excellent shola soil.	.. ..	.. ..	.. ..	Cryptomeria japonica planted 1885-86, since when not touched. Salix grows well in the swamp.
17. Sub-compartment (*a*) Cryptomeria japonica.	6·67	Aspect—South-west. Slope—Rather steep. Soil—Medium. In parts, fairly dense, elsewhere scattered. About 10 acre Pinus insularis planted in 1927. Except where the old crop is dense the area was replanted with Cryptomeria japonica in 1926 and 1927.	(*a*) and (*b*). 1907-08 1923-24	.. 21 38	.. 1,604 4,337	Planted 1885-88 as a mixture of Calitris, rhomboidea, Cryptomeria japonica and some pines. Cryptomeria japonica was in most places much suppressed by the Calitris. The felling in 1907-09 was a thinning; that in 1923-24 was removal of all Calitris except seedling undergrowth to free Crypto-meria japonica. A few pines—Pinus long folia and Pinus insularis in the north-east corner. The above remarks refer to sub-compartments (*a*) and (*b*).

Aramby Block V—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
Sup-compartment (*b*) Pinus khassiya.	ACS. 3·70 10·37	A total failure due to deer and pig and to drought.				Planted 1926, 6′ × 6′. This sub-compartment will be planted up with bluegum under this plan.

Aramby Block VI.

[In addition to the following compartments the block contains 2·89 acres of shola and 33·17 acres of grass and swamp.]

Compartment.	Area.	Description.	Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Eucalyptus eugenoides. Grass	4·30 0·80 .. 5·10	Aspect—So th-east. Slope—Moderate. Soil—Grassland type. Crop—Fair.				Planted 1912, 6′ × 6′.
2. Eucalyptus pilularis. Grass	4·35 ·70 5·05	Aspect—South. Slope—Moderate. Soil—Grassland type. Crop—Excellent.	1925–26	13	2,543	Planted 1912, 6′ × 6′. Thinning.
3. Eucalyptus hemiphloia.	5·17	Aspect—South-west. Slope—Moderate. Soil—Grassland type. Crop—Stocking fairly complete but very crooked and slow-growing.				Planted 1911, 6′ × 6′.
4. Eucalyptus propinqua.	4·62	Aspect—West. Slope—Moderate. Soil—Grassland type. Crop—Very fair; stocking full.	1925–26	14	1,467	Planted 1911, 6′ × 6′. Thinning.
5. Eucalyptus acmenoides.	4·40	Aspect—North-west. Slope—Moderate. Soil—Grassland type. Crop—Fully stocked dense. Inclined to branch.				Planted 1911, 6′ × 6′. The tree appears to be subject to windbreak, and is naturally inclined to branch.
6. Eucalyptus paniculata.	3·60	Aspect—North. Slope—Moderate. Soil—Grassland type. Crop—Fair.				Planted 1911, 6′ × 6′.
7. Eucalyptus crebra.	4·67	Aspect—North. Slope—Gentle. Soil—Grassland type. Crop—Very poor. thought to be Eucalyptus siderophloia. Specimens sent to Dehra Dun are identified as Eucalyptus crebra. Mr. Cox remarks in 1913 that the seed is much mixed and many unknown varieties of eucalyptus were removed and planted in the noth-east corner of the block where many still are found.				Planted 1911, 6′ × 6′. Almost all trees in this compartment appear to be Eucalyptus crebra, though at the time of planting they were
8. Eucalyptus crebra.	5·04	Aspect—North. Slope—Gentle. Soil—Grassland type. Crop—Very poor.				Planted 1911, 6′ × 6′.

Aramby Block VI—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic seet per acre.	Remarks.
9. Eucalyptus punctata.	ACS. 3·15	Aspect—East. Slope—Medium. Soil—Grass land type. Crop—Good.	..	..	..	Planted 1911, 6′ × 6′, Thinned in 1918. (Mechanical thinning) over part 25 per cent removed yielding 56 cubic feet per acre. Over rest 50 per cent thinning, yielding 928 cubic feet per acre. The tree is inclined to branch.

Aramby Block VII.

1. Calitris rhomboidea. Grass.	3·18 4·18 7·36	Aspect—South-west. Slope—Gentle. Soil—Grassland type. Crop—Dense, with profuse seedling regeneration on the ground.	1906–07	17	Not known.	Planted 1889–90, 6′ × 6′. Thinning. The M.F.C. camp occupies the grass area in the compartment.
2. Calitris rhomboidea. Grass.	11·40 0·12 11·52	Aspect—South-west. Slope—Moderate. Soil—Grassland type. Crop—Calitris with a little Crypomeria japonica, much suppressed. Ground covered with seedling natural regeneration.	1906–07	17	Not known.	Planted 1889–90, 6′ × 6′. Thinning.
3. Calitris rhomboidea. Swamp.	9·97 0·30 10·27	Aspect—South. Slope—Moderate. Soil—Medium. Crop—Calitris, with much suppressed Cryptomeria japonica. Dense natural regeneration of Calitris.	1906–07 1925–26 Now divided into 3 sub-compartments. 3 (*a*) .. .. 3 (*b*) .. .. 3 (*c*)	17 36	Not known. 8,360 ACS. 3·30 2·97 3·70	Planted 1889–90. Thinning. Thinning over 3 acres of the compartment very heavy thinning. Later in the same year all Calitris interfering with suppressed Criptomeria japonica was removed. The result is a very open crop presenting a woeful spectacle. Under this plan it will be felled and replaced with bluegum.
4. Calitris rhomboidea. Shola. Grass.	4·76 5·53 0·72 11·01	Aspect—South. Slope—Moderate. Soil—Medium. Crop—Calitris, with much suppressed Cryptomeria japonica. Dense natural regeneration of Calitris.	1906–07 Now divided into two sub-compartments.— 4 (*a*) .. .. 4 (*b*)	17	Not known. ACS. 2·36 2·40	Planted 1889–90, 6′ × 6′. Thinning. In 1926–27 all Calitris interfering with Cryptomeria japonica removed. Result a very open and unsightly crop which will be removed and replaced by bluegum under this plan.

Cairnhill.

Area.—The total area is 446·82 acres made up of 109·31 acres Eucalyptus globulus, 6·28 acres other eucalyptus, 0·41 acres of acacia, 74·40 acres of confers and casuarina, 41·34 acres of swamp, grass, etc., and 215·08 acres of shola.

The total planted area is 190·40 acres.

Forest Settlement.—Cairnhill reserve was notified as reserve forest in G.O. No. 1321, Revenue (Forest No. 172), dated 1st December 1884 (B.P. Forest No. 4276), No. 446, dated 12th December 1884.

Cairnhill addition was notified as reserved forest in G.O. No. 62, Revenue (Forest No. 15), dated 15th January 1902 (B.P. No. 49, dated 30th January 1902). S. No. 116-D of Ootacamund measuring 1·43 acres and containing the Subrahmanya Swami and Rameswara Swami temples is an enclosure within the reserve with right of access by footpath. A right also exists for the Todas of Kakarimund to water their cattle at a fixed point in the Fairlawns stream.

An extension to Cairnhill addition was notified as reserved forest in G.O. No. 266, Revenue (Forest No. 49), dated 14th March 1902, embodied in B.P. No. 110, dated 26th March 1902. A path in the reserve leading to the above temples is a right of way.

Fernhill reserve was notified as reserved forest in G.O. No. 476, Revenue (Forest No. 129), dated 29th May 1891, embodied in B.P. Forest No. 303, dated 11th July 1891.

A right of way for pedestrions and horses exists on the path through the middle of Cairnhill reserved forest.

History.—The bluegum plantations on Cairnhill are on the site of the old Bathri shola, which appears to have escaped destruction long after most of the sholas near Ootacamund had been felled for fuel. Most of the old shola was however cut down by the end of 1878, planting of bluegum began in 1877 and by 1881, 60 acres are said to have been stocked (the present block II, compartments 1 to 10). In 1883-84 a further area of about 70 acres was planted (the present block III and block II compartments 11 to 21).

Felling began in 1884-85 and part of the plantation was regularly worked on a ten-year rotation. The rest was more or less neglected ; but during the past twenty years or so the whole area under eucalyptus (except block III) has been felled over, and practically all is now simple coppice.

The conifer and casuarina areas were planted in 1885 and the following years by Mr. Gamble, who also carried out about this time creeper cutting and improvement fellings in the shola areas.

A detailed description of compartments follows :—

Cairnhill Block I.

Compartmet.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
1. Bathri shola— Shola .. .. Grassland ..	ACS. 30·68 3·91					
2. C. Japonica .. Pinus longi folia. Cupressus macrocarpa and lansoniana. Shola .. .. Grass .. .. Total ..	4·00 0·55 0·70 8·00 0·71 13·96	Aspect—North-west. Slope—Moderate. Soil—Red clayey loam with humus. Crop—The growth of the C. japonica is not good. Pine is miserable and the cupressus fair but much branched. Among the shola are many very fine specimens of acacia melanoxylon.				Planted 1885-86. Cryptomeria was thinned—a very light thinning in 1924-25 yielding four lots of fuel.
3. Fernhill shola— Eucalyptus globulus.	10·90	Aspect—North Slope—Moderate. Soil—Red clayey loam, deep with much humus. Crop—Eucalyptus globulus planted in 1927. Quality—I.	1926-27	41	6,572	Planted 1927. Formerly contained Acacia dealbata and melanoxylon planted in 1885. These were felled in 1926-27 yielding 6,572 cubic feet stacked per acre.
4. Sub-compartment (*a*)— Calitris rhomboidea. Sub-compartment (*b*)— Cupressus torulosa. Pinus insignis .. Shola .. .. Grass .. .. Swamp .. .. Total ..	 14·40 0·22 0·17 5·07 3·86 1·60 25·32	Aspect—All except west. Slope—Moderate. Soil—Most grassland. Crop—The Calitris has a moderate undergrowth of natural seedlings. The growth of the Pinus insignis is fair. The shola contains a few Cryptomeria japonica.	For this plan compartment 4 (*a*) is divided into— ACS. 4 (*a*) (i) .. 3·40 4 (*a*) (ii) .. 3·10 4 (*a*) (iii) .. 3·20 4 (*a*) (iv) .. 4·70			Planted 1885-86, except the Pinus insignis which was planted in 1907 and the Cupressus which was planted about 1900. A few junifers in the grassland near Picnic Corner planted about 1923. Under this plan the Calitris will be replaced by bluegum the other species will be retained.

Cairnhill Block I—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.					
5.	..	Toda patta land.				Excluded from this working plan.
6. Shola ..	11·68					Will be treated as all shola grass and swamp the 0·41 acre of Acacia being ignored.
Acacia dealbata ..	0·41					
Grass	1·71					
Swamp	1·00					
	14·80					
7. Shola	27·20					
Grass	1·16					
	28·36					
8. Shola	28·17					
Grass	10·48					
	38·65					
9. Sub-compartment (*a*) Cupressus macrocarpa and torulosa.	24·26	Aspect—The hill top, including every aspect. Slope—Moderate. Soil—Grass land mostly. Crop—Growth, of Cupressus fair, but branching, on the eastern aspects. Very stunted and open on the western side. The Frenella has dense undergrowth of natural regeneration.	..	..	..	Planted. Cupressus 1885–87. Calitris 1889–90. The Cupressus area swept by fire in 1905–06. A sample plot of Cupressus torulosa at Picnic corner. Under this plan the Calitris will be replaced by bluegum; the rest will be retained.
Shola	0·84					
Grass	5·25					
	30·35					
Compartment 9 (*b*) is subdivided into 9 (*b*) (i).	3·40					
9 (*b*) (ii) ..	3·53					
Other species.	6·93					
10. Casuarina quadivalis.	5·24	Aspect—North-west to south-west. Slope—Moderate to steep. Soil—Grassland. Crop—Mostly very irregular and stunted.	..	..	..	Date of planting not known—probably by Mr. Gamble in and after 1886. As it is not easily accessible hardly worth converting to bluegum and will be left as it is.
Calitris ..	0·44					
Mixture of Casuarina, Calitris and Cupressus.	14·83					
	20·51					
11. Shola	37·33	..	..	..	..	
Grass	7·10					
Swamp	0·13					
	44·56					

Cairnhill Block II.

1. Eucalyptus globulus coppice.	3·56	Aspect—South-east. Slope—Rather slope. Soil—Shola type. Crop—Dense. Quality—I.	1887–88 1896–97 1907–08 1922–23	10 9 10 15	6,148 9,761 7,010 7,550	Planted, 1877–80, 6′ × 6′. Probably includes standards.
2. Eucalyptus globulus coppice.	4·62	Aspect—South-east. Slope—Moderate to steep. Soil—Shola type. Crop—Dense. Quality—I.	1884–85 1894–95 1904–05 1922–23	7 9 9 18	No record. Do. 6,122 9,194	Planted 1877–80, 6′ × 6′.

Cairnhill Block II—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
	ACS.					
3. Eucalyptus globulus coppice.	4·84	Aspect—South. Slope—Moderate to steep. Soil—Shola type. Crop—Dense, except near stream. Quality—I.	1888–89 1898–99 1908–09 1922–23	11 10 10 14	13,666 8,245 6,346 9,024	Planted 1877—80, 6′ × 6′. Probably included standards.
4. Eucalyptus globulus coppice (with some standards). Also some Eucalyptus seiberiana, rostrata and obliqua.	6·96	Aspect—South. Slope—Medium. Soil—Shola type. Crop—Moderate. Quality—II.	1927–28	22	7,862	Planted 1877–80, 6′ × 6′. Leaving sample trees standing. Figures of earlier fellings not accurately known.
5. Eucalyptus globulus coppice.	5·57	Aspect—South. Slope—Steep to moderate. Soil—Shola type. Crop—Dense. Quality—II.	1889–90 1899–00 1909–10	12 10 10	6,509 8,294 4,535	Planted 1877—80, 6′ × 6′. Probably included standards.
6. Eucalyptus globulus coppice. Shola	4·00 0·84 4·84	Aspect—West. Slope—Steep. Soil—Shola type. Crop—Fairly dense Quality—II.	1891–92 1901–02 1912–13	14 10 11	10,224 6,336 5,670	Planted 1877—80, 6′ × 6′. .. ..
7. Eucalyptus globulus coppice. Shola	5·48 0·40 5·88	Aspect—South to west. Slope—Slight to steep. Soil—Shola type. Crop—Fairly dense. Quality—II.	1886–87 1896–97 1906–07	9 10 10	7,668 6,341 4,873	Planted 1877—80, 6′ × 6′. ..
8. Eucalyptus globulus coppice. Shola	4·69 0·52 5·21	Aspect—West to north-west. Slope—Moderate. Soil—Shola type. Crop—Dense except in southern corner. Quality—I.	1892–93 1902–03 1923–24	No record. 10 21	 6,618 12,844	Planted 1877—80, 6′ × 6′. Included some standards.
9. Eucalyptus globulus coppice. Shola	3·68 0·48 4·16	Aspect—West. Slope—Steep to gentle. Soil—Shola type. Crop—Fairly dense. Quality—I.	1890–91 1900–01 1911–12	13 10 11	6,184 6,941 7,440	Planted 1877—80, 6′ × 6′.
10. Eucalyptus globulus. Shola	3·50 0·50 4·00	Aspect—West to north-west. Slope—Moderate. Soil—Shola type. Crop—Bluegum planted 1924. Fully stocked. Quality—I.	1893–94 1903–04 1917–18 1923–24	} .. 14 6	No record. 6,034 1,817	Planted 1924, 6′ × 6′. Originally planted 1877—80. At last felling a mistake appears to have been made about the age and because of the (supposed) low yield the compartment was replanted. The compartment was actually felled at 6 years for which age the yield was normal.

Cairnhill Block II—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
11. Eucalyptus globulus coppice (with some Eucalyptus sieberiana coppice).	ACS. 6·75	Aspect—South-west. Slope—Moderate to steep. Soil—Medium. Crop—Somewhat open. Quality—II.	1918–19	35	12,515	Planted 1883–84. Distance unknown. It was originally intended that acacia melanoxylon should form the main crop but it was a failure. Vacancies were filled up with Eucalyptus globulus and sieberiana till 1887.
12. Eucalyptus globulus coppice (with some Eucalyptus sieberiana coppice).	4·83	Aspect—South to south-west. Slope—Moderate. Soil—Medium. Crop—Somewhat open. Quality—II.	1819–20	36	19,229	It was originally intended that acacia melanoxylon should form the main crop but it was a failure. Vacancies were filled up with Eucalyptus globulus and sieberiana till 1887. Two or three large standards remain.
13. Eucalyptus globulus coppice (with some Eucalyptus sieberiana coppice). Shola	4·64 1·00 5·64	Aspect—South to west. Slope—Steep to gentle. Soil—Medium. Crop—Fairly dense. Quality—II.	1920–21	37	13,707	Planted 1883–84. Distance unknown.
14. Eucalyptus globulus coppice (with some Euclayptus sieberiana coppice).	3·83	Aspect—North to north-west. Slope—Steep. Soil—Shola type. Crop—Dense. Quality—I.	1921–22	38	12,971	Planted 1883–84. Distance unknown.
15. Eucalyptus globulus coppice. Grass	4·75 0·33 5·08	Aspect—South to south-west. Slope—Steep to gentle. Soil—Shola type. Crop—Fairly dense. Quality—I.	1921–22	38	19,503	Planted 1883—86. Distance unknown.
16. Eucalyptus globulus coppice.	3·55	Aspect—South-east. Slope—Moderate. Soil—Shola type. Crop—Dense. Quality—I	1916–17	33	18,557	Planted 1883—86. Distance unknown.
17. Eucalyptus globulus coppice.	3·28	Aspect—South to south-west. Slope—Moderate. Soil—Shola type. Crop—Dense. Quality—I.	1914–15	32	18,585	Planted 1883—86. Distance unknown.
18. Eucalyptus globulus coppice.	6·44	Aspect—South-east to west. Slope—Steep. Soil—Shola type. Crop—Dense. Quality—I.	1914–15	32	17,795	Planted 1883—86. Distance unknown.

Cairnhill Block II—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
	ACS.					
19. Eucalyptus globulus coppice (with a little Eucalyptus sieberiana coppice).	6·44	Aspect—South-west. Slope—Steep. Soil—Shola type. Crop—Dense. Quality—I.	1915–16	33	15,689	Planted in 1883—86. Distance unknown.
20. Eucalyptus globulus coppice.	3·55	Aspect—South to west. Slope—Gentle to steep. Soil—Shola type. Crop—Dense. Quality—I.	1907–08 1927–28	24 20	14,300 10,512	Planted in 1883—86. Distance unknown.
21. Eucalyptus globulus coppice.	3·45	Aspect—South-west to west. Slope—Moderate. Soil—Shola type. Crop—Dense. Quality—I.	1913–14	30	13,167	Planted in 1883—86. Distance unknown. A small part of compartment felled in 1907–08, yield unknown.
22. Cryptomeria japonica.	1·52	Aspect—South. Slope—Moderate. Soil—Shola type of excellent quality. Crop—Growth very good, with heavy undergrowth of shola trees.	..	..	..	Planted in 1886. Has not been thinned. Sample plot taken by Imperial Sylviculturist in February 1917 gave:— Age, 31. Average height, 65 feet. ,, girth, 40 inches. Volume per acre— Timber over 2 feet girth, 4,120 cubic feet per acre. Small wood, 860 cubic feet per acre.
23. Shola	15·11	....	..	..	..	..
24. Shola .. .. Grass	9·64 1·05 10·69	....	..	..	..	..
25. Cryptomeria japonica. Shola .. .. Grass	1·14 15·80 1·08 18·02	Aspect—West to south-east. Slope—Gentle to steep. Soil—Shola type. Crop—Growth of Cryptomeria poor.	..	..	..	Cryptomeria planted in 1886. Has not been thinned, much attacked by loranthus and has been damaged by fire.
26. Shola	21·82	....	..	..	..	..

Cairnhill Block III.

Eucalyptus Spp. ..	6·28	Not divided into compartments. Known as the Arboretum and contains a number of varieties of Eucalyptus including Eucalyptus stuartiana, Eucalyptus gunnii, Eucalyptus capitellata, Eucalyptus viminalis, Eucalyptus botryoides, Eucalyptus obliqua, Eucalyptus Sieberiana and Angophora lanceolata.
Grass	1·97	
	8·25	

Baikie and Madanna.

Area.—The total area is 83·75 acres, made up of 79·63 acres of bluegum, 3·72 acres of grass and swamp, and 0·40 acre of shola.

The total planted area is 79·63 acres.

Forest Settlement.—Baikie reserve (including both plantations) was notified as reserved forest in G.O. No. 1407, Revenue (Forest No. 182), dated 18th December 1884, embodied in B.P. No. 86 (Forest No. 16), dated 14th January 1885.

An addition to Baikie Reserved Forest was notified in G.O. No. 1075, Revenue (Forest No. 157), dated 21st September 1885, embodied in B.P. No. 2856 (Forest No. 564), dated 13th October 1885.

Both are now absorbed in the Wenlock Downs Reserved Forest.

History.—The early history of Baikie is obscure. There is no mention of it prior to 1874. The evidence of old cultivation and the occasional occurrence of cinchona coppice lead to the surmise that it may have been originally an experimental cinchona garden.

Thirty-three acres known as "Old Baikie" were planted by Major Jago in 1874 with Eucalyptus globulus and a few Eucalyptus sieberiana, and in 1882 the remainder of the area ("New Baikie") was purchased for Rs. 2,059 from a Colonel Shaw and planted with Eucalyptus globulus, Eucalyptus sieberiana and Acacia decurrens.

Madanna plantation is on the site of an old shola, sold by auction in 1859 for fuel supply to Ootacamund, and bought by one Madanna—hence the name. Planting began in 1860 and by 1862 was fully stocked with Eucalyptus and Acacia.

Prior to 1912 both plantations were irregularly worked for charcoal. Since that date the whole of both have been felled over for firewood, and Acacia areas have been planted up with bluegum. The stand is now coppice (in parts young uncoppiced growth) of bluegum with, in places, a dense Acacia undergrowth.

Baikie and Madanna (Block IV of Cairnhill Felling Series).

Madanna is "Dudley" on the Ootacamund Hunt Map.

Compartment.	Area.	Description.	Past yield. Year.	Past yield. Age.	Past yield. Stacked cubic feet per acre.	Remarks
1. Eucalyptus globulus coppice. Eucalyptus globulus .. Shola .. .. Blank	5·30 1·20 0·40 1·30 8·2	Aspect—South. Slope—Moderate to gentle. Soil—Shola soil except where grass land has been planted up round the edges.	1925-26	..	13,666	These two compartments forming Madanna plantation were planted between 1860 and 1863. In 1895—96 5 acres were felled leaving 263 standards on the felled area. In 1896-97, 3 more acres were felled. So the age at felling in 1925 was very uneven. In 1926 and 1927 some blanks and acacia areas and also some grass-land at the edges were planted up with bluegum. And a further 1·3 acres remains to be planted up in 1928.
2. Eucalyptus globulus coppice. Eucalyptus globulus..	8·20 1·50 9·70	Aspect—South. Slope—Gentle. Soil—Shola type. Crop—Fairly dense. Quality II.	1925-26	..	13,293	
3. Eucalyptus globulus Grass	9·04 0·90 9·94	Aspect—North-west. Slope—Moderate. Soil—Grass land type poor and shallow. Crop—Partly bluegum and Eucalyptus sieberiana coppice but mostly bluegum planted in 1921 to 1923 in felled acacia areas. Stocking incomplete and many blanks with only underwood of acacia decurrens. Quality III.	1899-00 1920-21	17 21	Not known 14,662	Originally planted mostly with acacia in 1882-83 6'×6'. Mostly acacia figures for 1920 felling looks improbable. After felling in 1920-21 the compartment was planted up with bluegum with indifferent success—mostly in 1923.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
4. Eucalyptus globulus coppice (with some Eucalyptus sieberiana coppice).	11·00	Aspect—North-west. Slope—Moderate. Soil—Grass land type, poor and shallow. Crop—Fair; with underwood of acacia decurrens. Quality III.	1896–97 1919–20	14 23	4,927 6,808	These two compartments were planted in 1882–83, 6′ × 6′. The area was previously cultivated (with cinchona). Both compartments were felled in 1896–97 yielding an average of 4,927 cubic feet per acre.
5. Eucalyptus globulus coppice (with some Eucalyptus sieberiana coppice.	8·15	Aspect—North-west. Slope—Moderate to gentle. Soil—Grass land type poor. Crop—Rather open. Underwood of acacia except in strip about three chains wide through the middle of the compartment where there is no undergrowth.	1896–97 1919–20	14 23	4,927 7,473	
6. Eucalyptus globulus copp ce.	11·79	Aspect—West. Slope—Steep to moderate. Soil—Shola type. Crop—Dense below the road, rather open above. Quality I.	1886–87 1903–05 1917–18	12 18 13	6,766 7,316 8,967	Planted in 1874, 6′×6′. Worked for charcoal in 1903–05.
7. Eucalyptus globulus coppice. Grass.	11·38 1·52	Aspect—West to south-west. Slope—Moderate. Soil—Shola type. Crop—Fairly dense, but with open patches, chiefly above the road, eastern portion rather open. Quality II.	1885–86 1902–04 1916–17	11 17 14	5,155 7,196 5,291	Planted in 1874, 6′ × 6′.
8. Eucalyptus globulus coppice.	12·07	Aspect—North-west to west. Slope—Moderate. Soil—Shola type. Crop—Dense. A few standards at the top of the slope. Quality I.	1884–85 1900–01 1913–14	10 16 13	6,293 7,484 8,838	Planted in 1874, 6′ × 6′.

Governor's Shola and Adjoining Plantations.

Area.—The total area of the eight plantations making up this group is 224·08 acres made up of 170·31 acres of bluegum, 30 acres of acacia, 19·29 acres of grass and swamp and 4·48 acres of shola.

The total planted area is 200·31 acres.

Forest Settlement.—Culli, Chowghat Culli, Governor's Shola, Sheffield, Andy, Huppatti and Chemunguli were included within reserve forests by G.O. No. 1407, Revenue (Forest No. 182), dated 18th December 1884, embodied in B.P. No. 86 (Forest No. 16), dated 14th January 1885. Anaikal plantation was included in Krurmund North Reserve Forest notified in G.O. No. 188, Revenue (Forest No. 23), dated 13th March 1886, embodied in B.P. Forest No. 769, dated 30th March 1886. All are now absorbed in the Wenlock Downs Reserve Forest notified in March 1900.

There are no rights admitted which affect the plantations.

History.—With the exception of Chemunguli which lies several miles to the north-west, all the rest of the plantations are grouped together and are loosely known as Governor's Shola, though the designation is strictly applicable only to the area called block VI. Governor's shola

itself was thrown open to felling in 1860, when a Mr. Wilson undertook the annual contract for the supply of fuel to Ootacamund for a sum of Rs. 3,900. In passing it may be mentioned that the market rate of sale was fixed at Rs. 3-8-0 per 750 lbs. or Rs. 10-8-0 per ton.

The felling was promptly followed by planting, but most of the work was very unsuccessful. Colonel Beddome stated that by the end of 1865, 150 acres of shola had been destroyed and only 10 acres of acacia plantation formed.

From 1865 to 1868 a considerable area of the destroyed shola must have been planted up with acacia, much of which evidently failed. From 1870 only Eucalyptus globulus was planted and the mixture of species in all blocks seems to indicate the partial failure of acacia planting and the subsequent introduction of Eucalyptus. Exceptions to this are Sheffield (originally pure acacia) and Anaikal, pure bluegum.

All that is known of the origin of Chemunguli (' Bacon Wood ') is that in 1879, 36 acres of shola were cut down and 39,200 bluegum seedlings were planted.

Work in all these blocks was carried out in an irregular manner till 1923–24, with intervals when the plantations were not worked at all. In the past four years the whole of Culli and Sheffield, most of Chowghat Culli and part of Governor's shola have been clearfelled, and Sheffield has been planted up with bluegum.

Compartments.—A detailed description of compartments follows :—

Governor's Shola, Block I (Chowghat Culli).

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Eucalyptus globulus coppice. Acacia melanoxylon. Shola .. .. Grass	ACS. 7·00 6·60 0·35 0·90 14·85	Aspect—North to north-west. Slope—Very steep. Soil—Shola type. Crop—The acacia is mixed with some bluegum. Bluegum coppice growth fairly dense. Quality II.	1882–83 1889–90 1925–26	.. 18 37	.. 4,372 15,874	Planted in 1871. 6′ × 6′. Four acres were felled yielding a reveuue of Rs. 3,200. 10·26 acres felled probably only a thinning. Eucalyptus area only was clearfelled. The age is given as 37 but this is only the approximate average age of the crop.
2. Eucalyptus globulus coppice (with some old standards in part of the area). Shola .. .. .. Grass	11·60 0·40 1·90 13·90	Aspect—North-west to north. Slope—Very steep. Soil—Shola type. Crop—Fairly dense. Quality II.	1891–92 1926–28	20 ..	6,940 Not completed.	Planted in 1871. 6′ × 6′. Only part of the area cut over and standards left. The age at 1926–28 felling is— Coppice, 32. Standards, 53. The felling was not completed in 1927-28 and under this plan the remaining trees will be felled in 1928–29. Some damage will be done to the coppice but this cannot be helped. The trees will be too big to handle if left standing for another rotation.

Governor's Shola, Block II (Culli).

Compartment.	Area.	Description.	Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Eucalyptus globulus coppice. Grass land .. .. Swamp	7·70 1·20 0·40 9·30	Aspect—South-west. Slope—Moderate to steep. Soil Shola type. Crop—Dense in parts but with blank patches. Quality II.	1924–26	..	13,387	Planted in 1870. 6′ × 6′. Age, uncertain when felled in 1924. Records of previous yields very unreliable and not worth quoting.
2. Eucalyptus globulus coppice. Grass .. .. Swamp	6·10 2·20 0·30 8·60	Aspect—North-west. Slope—Moderate to steep. Soil—Shola type. Crop—Moderate with blank patches. Quality II.	1923–24	..	11,903	Planted in 1879. 6′ × 6′. Age, uncertain when felled in 1924. Records of previous yields very unreliable and not worth quoting.

Governor's Shola, Block III (Sheffield).

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
1. Eucalyptus globulus.	ACS. 12·65	Aspect—South to south-west. Slope—Moderate. Soil—Shola type. Crop—Bluegum planted in 1927. Fully stocked 9′ × 9′. Quality I.	1926–27	16/19	4,500	Originally planted in—1863 and 1883 with Acacia dealbeta and melanoxylon. Acacia felled in 1926–27 and the two compartments planted with bluegum, 9′ × 9′ in 1927. 1878, 15 acres felled for fuel. 1882–85, Thinned yielding a revenue of Rs. 337. 1892 Worked under coppice with standards. 1906–10, 23·67 acres worked over yielding 3,130 cubic feet stacked at age 12 to 16.
2. Eucalyptus globulus.	13·35	Aspect—South-west to north. Slope—Moderate. Soil—Shola type. Crop—Bluegum planted in 1927. Fully stocked 9′ × 9′. Quality I.	1926–27	15/19	5,804	

Governor's Shola, Block IV (Andy).

Compartment.	Area.	Description.	Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Acacia melanoxylon High Forest	9·10	Aspect—South-west. Slope—Moderate. Soil—Grass land type. Crop—Fairly fully stocked, except about 3 acres on south-west side which is open having suffered from wind.	..	..	..	Probably planted in the sixties. Has not been worked Many trees attacked by loranthus and often killed out right.
2. Eucalyptus globulus coppice (with acacia melanoxylon under—storey)	12·40	Aspect—North to north-west. Slope—Steep to moderate. Soil—Part shola type. Crop—Irregular mixture of Eucalyptus globulus and acacia melanoxylon with the former dominant. Both coppice about 37 years old. Quality II.	..	..	..	The acacia was probably planted in the sixties; the bluegum about 1873. No records of past working but seems to have been felled over about 1889. Now divided into sub-compartments— 2 (*a*), 6·2 acres. 2 (*b*), 6·2 ,,
3. Eucalyptus globulus coppice (with under storey of acacia melanoxylon). Acacia melanoxylon.	7·80 0·95 8·75	Aspect—West and north. Slope—Moderate. Soil—Shola tppe. Crop—Irregular mixture of Eucalyptus globulus with acacia melanoxylon, the former dominant. Both about 37 years old. The 0·95 acre of acacia melanoxylon is in four isolated patches near Andy corner—probably unworked since planting in the sixties. Quality II.	..	..	..	The acacia was probably planted in the sixties; the bluegum about 1873. No records of past working but seems to have been felled over about 1889.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked. cubic feet per acre.	Remarks.
		Governor's Shola, Block V (Huppatti).				
1. Eucalyptus globulus coppice (with acacia melanoxylon).	ACS. 3·45	Aspect—South. Slope—Steep. Soil—Grass land type. Crop—Growth indifferent A wind belt of standards about 45 years old all round. Quality III.				Planted in 1873. 9′×9′
2. Eucalyptus globulus (with acacia melanoxylon). Swamp	9·80 0·65 10·45	Aspect—South-west, south-east and north. Slope—Steep. Soil—Grass land type. Crop—Growth poor except in the valley. In the northern half a number of standards about 45 years old. Quality, III.	1882–83 1893–94	.. 11	Not recorded. 3,706	In 1882–83 the plantation suffered much from wind and fire.
		Governor's Shola, Block VI.				
1. Acacia dealbata coppice and Acacia melanoxylon. Grass	10·60 0·30 10·90	Aspect—North. Slope—Steep to moderate. Soil—Shola type. Crop—Acacia dealbata coppice of sprawling growth. A strip of acacia melanoxylon along the east edge and scattered elsewhere, crop very irregular.	..	..	..	Planted in 1864–65. Past yield not recorded.
2. Eucalyptus globulus coppice (with acacia melanoxylon). Acacia dealbata and melanoxylon. Shola .. .. Total ..	12·30 0·70 0·38 13·38	Aspect—North-west. Slope—Steep. Soil—Shola type. Crop—Coppice about 27 years old, much suppressed, with many standards much older. Quality III.	..	..	..	Planted in 1862–65. Past yield not recorded. For the purposes of this plan, this compartment is divided into two sub-compartments— 2 (*a*), 6·4 acres. 2 (*b*), 6·6 acres. The latter 2 (*b*) contains 0·70 acre pure acacia and much acacia throughout. The former is mostly bluegum.
3. Eucalyptus globulus coppice. Acacia melanoxylon. Grass .. .. Total ..	11·85 0·45 0·55 12·85	Aspect—North. Slope—Steep. Soil—Shola type. Crop—Over most of the area age about 41 years old, four acres in north-east corner felled in 1917-18 and now ten years old. Stocking fairly dense. Quality III 3 (*a*) I. 3 (*b*) II.	..	..	..	Planted in 1870—72. Earliest fellings not recorded. 3·9 acres felled in 1917–18 yielding 18,240 cubic feet stacked per acre at age 32. Now divided into two sub-compartments :— ACS. 3 (*a*) Eucalyptus .. .. 5·85 Acacia melanoxylon .. .. .. 0·45 3 (*b*) Eucalyptus .. .. 6·00 Grass .. .. 0·55 3 (*b*) includes the area of 4 acres felled in 1917–18.
4. Eucalyptus globulus coppice. Acacia melanoxylon. Shola .. .. Total ..	11·00 1·60 1·85 14·45	Aspect—North to North-west. Slope—Steep. Soil—Shola type. Crop—Fairly dense. Clear-felled in 1927–28. Quality I.	1927–28	39	14,291	Planted in 1863–65, and 1870–72. Early yields not recorded. The strip of acacia melanoxylon will be left as a wind belt.
5. Eucalyptus globulus coppice. Shola .. .. Total ..	8·70 0·90 9·60	Aspect—North. Slope—Steep. Soil—Shola type. Crop—About 38 years old. Fairly dense, with a few acacia melanoxylon. Quality I.	..	..	..	Planted in 1870–72. Past yields not recorded.

Governor's Shola, Block VII (Anaikkal).

Compartment.	Area.	Description.	Past yield.			Remarks
			Year.	Age.	Stacked cubic feet per acre.	
Not divided Eucalyptus globulus coppice.	Acs. 7·51	Aspect—North. Slope—Steep. Soil—Shola type. Crop—Coppice about 36 years old (in 1928). Fairly good in north-west; poor and open in south and east. Older standards round the edges. Quality—II.	1892–93	19	4,334 Leaving standards.	Planted in 1873. 9'×9'. Originally of greater extent. About 3 acres were destroyed by fire in 1882–83.
Shola	0·66					
Grass	1·11					
Total ..	9·22					

Governor's Shola, Block VIII Chemunguli.

Compartment.	Area.	Description.	Year.	Age.	Stacked cubic feet per acre.	Remarks
1. Eucalyptus globulus coppice.	4·55	Aspect—West. Slope—Steep. Soil—Shola type. Crop—Somewhat open. Quality—III.	1911–12	..	6,440	The plantation is 'Bacon Wood' on the Hunt Map. Prior to 1911–12 the block was worked, without system of any sort for charcoal resulting in blanks in the vicinity of the kilns.
Grass	2·70					
Total ..	7·25					
2. Eucalyptus globulus with standards ..	12·20	Aspect—West. Slope—Moderate. Soil—Shola type. Crop—Many blanks and of very uneven age. Quality—III.	..	..	..	
Grass	1·95					
Total ..	14·15					
3. Eucalyptus globulus with standards	10·35	Aspect—West. Slope—Moderate. Soil—Shola type. .. Crop—Many blanks and of very uneven age. Quality—III.	..	..	..	
Grass	5·13					
Total ..	15·48					

Snowdon.

Area.—The total area is 233·12 acres, made up of 46·09 acres of bluegum, 50·65 acres of other Eucalyptus, 39·98 acres of Acacia, 43·64 acres of grass and swamp, and 52·76 acres of shola.

The total planted area is 136·72 acres.

Forest settlement.—Snowdon was constituted reserved forest in G.O. No. 478, Revenue (Forest No. 79), dated 28th April 1885, embodied in Board's Proceedings No. 1473, Forest No. 273 dated 18th May 1885.

Snowdon addition was constituted reserved forest in G.O. No. 3419, Revenue (Forest No. 205), dated 15th November 1911, embodied in Board's Proceedings No. 301, dated 1st December 1911.

Marlimund was reserved in G.O. No. 1321, Revenue (Forest No. 172), dated 1st December 1884, embodied in Board's Proceedings No. 4276 (Forest No. 446), dated 12th December 1884.

Marlimund Addition was reserved in G.O. No. 2888, Revenue (Forest No. 144), dated 23rd November 1907, embodied in Board's Proceedings Forest No. 244, dated 7th December 1907.

The bridle path from Snowdon House to Dodabetta passing through the area is a right of way. Since settlement it has been converted into the present Kotagiri road.

The road running parallel to the Southern boundary of the Marlimund Addition Reserved Forest is a right of way. So are the foot-paths running along the southern and western boundaries.

History.—The origin of the plantation is obscure. Some Acacia was planted in 1860. Most of the records relate to Norwood plantation which has been absorbed in the Government House grounds, and has vanished as a plantation. The Hardwoods date from 1910–12.

Snowdon Block I.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Eucalyptus eugenoides	ACS. 4·37	Aspect—South-west. Slope—Moderate. Soil—Grassland type. Crop—Good, except on exposed W edge. Needs thinning.	..	..	..	Planted in 1910–11. 6′ × 6′.
2. Eucalyptus pilularis.	6·87	Aspect—South-west and south. Slope—Moderate. Soil—Grassland type. Crop—Growth very good. Needs thinning.	..	..	..	Planted in 1910. 6′ × 6′. In May 1919 a light thinning was made in the South-east half of the compartment in which 78 stems were removed.
3. Eucalyptus hemiphloia. Shola	4·87 1·86 6·73	Aspect—South. Slope—Steep. Soil—Grassland type. Crop—Well stocked but the growth is very slow and the trees straggling and misshapen.	..	..	..	Planted in 1910. 6′ × 6′.
4. Eucalyptus propinqua. Shola	6·37 2·43 8·80	Aspect—South and south-west. Slope—Moderate. Soil—Grassland type. Crop—Growth fair, could do with a cleaning and light thinning.	..	..	..	Planted in 1910. 6′ × 6′.
5. Eucalyptus almenoides. Shola	6·62 2·68 9·30	Aspect—South. Slope—Gentle. Soil—Grassland type. Crop—Dense; growth fair. Trees inclined to branch.	..	..	..	Planned in 1910. 6′ × 6′. Thinned in 1919. One hundred and forty-seven stems removed.
6. Eucalyptus paniculata.	7·18	Aspect—South. Slope—Gentle. Soil—Grassland type. Crop—Well stocked. Growth rather poor.	..	..	..	Planted in 1910. 6′ × 6′.
7. Eucalyptus crebra. Shola	4·12 2·18 6·30	Aspect—South. Slope—Steep. Soil—Grassland type. Crop—Fully stocked but the growth is miserable.	..	..	..	Planted in 1910. 6′ × 6′. It was intended to plant Eucalyptus siderophloia but there was apparently a mistake in the seed supplied from Australia. Mr. Cox remarks that the seedlings bore no resemblance to the older Eucalyptus siderophloia tree in Sims Park. Evidently Eucalyptus crebra seed was supplied.
8. Eucalyptus crebra. Shola	6·00 1·93 7·93	Aspect—South. Slope—Steep to moderate. Soil—Grassland type. Crop—Fully stocked but the growth is miserable.	..	..	..	Planted in 1910. 6′ × 6′.
9. Eucalyptus punctata.	4·25	Aspect—South-west. Slope—Steep. Soil—Grassland type. Crop—Good.	..	..	..	Planted in 1910. 6′ × 6′. Thinned in 1919—a 25 per cent 'mechanical' thinning removing 388 stems. The crop suffered much from wind in 1912.

Snowdon Block II.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
1. Acacia dealbata coppice. Shola	ACS. 7·91 14·31 22·22	Aspect—North, north-west and west. Slope—Steep. Soil—Shola type. Crop.—Acacia dealbata coppice; growth dense. Age in 1928, 10 to 11 years. About one acre of badly stocked blue-gum planted in 1920–22 with dense Acacia beneath.	1916—18	9	4,945	Date of original planting unknown. Subdivided into— ACS. 1 (*a*) .. 3·91 acacia. 1 (*b*) .. 4·00 ,,
2. Acacia dealbata coppice and root suckers. Shola .. .. Grass	7·50 3·31 6·62 17·43	Aspect—North-east and north-west. Slope—Moderate. Soil—Most grassland type. Crop—Acacia re-growth 8 to 11 years old (in 1928). The Accacia is spreading over the grass to the west by root suckers. About half acre has blue-gum planted in 1919–21 over the Acacia.	1917—20	..	6,100	Date of original planting not known. Approximate. Subdivided into— ACS. 2 (*a*) .. 3·07 acacia. 3·31 shola. 2 (*b*) .. 3·08 acacia. 6·62 grass.
3. Acacia dealbata coppice. E calyptus globulus. Grass	6·47 1·20 8·25 15·92	Aspect—South-east to south-west. Slope—Moderate. Soil—Grassland type. Crop—Acacia re-growth age (in 1928) 7 to 10 years. Eucalyptus globulus planted in 1922–23 on area formerly occupied by Acacia melanoxylon.	1918—21	..	4,352	Date of original planting not known.
4. Acacia dealbata coppice with over wood of bluegum. Acacia dealbata coppice. Shola .. .. Grass	7·65 5·00 5·31 0·75 18·71	Aspect—South-west and west. Slope—Steep to moderate. Soil—Grassland type. Crop—Acacia dealbata coppice 6 to 9 years old (in 1928). About half the compartment (lower half) planted with bluegum in 1921–22–23 and where this has not been overcome by the Acacia it forms the main crop.	1919—22	..	4,498	Year of original planting not known.
5. Eucalyptus globulus. Grass	7·44 8·00 15·44	Aspect—Various. Slope—Steep mostly. Soil—Grassland type. Crop—Eucalyptus globulus planted in 1925 and 1926. Acacia undergrowth, and Acacia has spread over much of the 'grass' area. Eucalyptus quality II.	1921—24	..	7,219	Year of original planting with Acacia unknown. Eucalyptus planted in 1925 and 1926.
6. Eucalyptus globulus with much acacia undergrowth and a little Eucalyptus paniculata. Acacia melanoxylon. Shola	6·67 6·93 5·06 18·66	Aspect—South, north-west and north. Slope—Steep. Soil—Mostly grassland type except in the melanoxylon area. Crop—Firly fully stocked Eucalyptus with dense Acacia undergrowth. Acacia melanoxylon high forest with shola undergrowth. Eucalyptus quality II.	1921—23	..	* 2,924	Year of original planting with Acacia not known. Eucalyptus planted in 1921–23.

* Figure of doubtful value.

Snowdon Block II—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked Cubic feet per acre.	
7. Shola .. .. Grass	ACS. 13·69 5·53 19·22	....	..	..	..	....
8. Acacia dealbata coppice with some Eucalyptus and a few Pinus khassya.	5·17	Aspect—South east. Slope—Steep to moderate. Soil—Acacia coppice about 3 years old with some Eucalyptus and Pinus khassya planted in 1922 and 1923, and a clump of self sown Eucalyptus near the Government House gate.	..	..	..	Year of original planting not known. This area was added to the Snowdon Reserve in 1918. It was therefore not dealt with in Mr. Cox's plan. The Acacia was felled with compartment 6 in 1922–23.
		Snowdon Block III (Marlimund).				
1. Eucalyptus globulus coppice. Grass and swamp ..	3·62 1·25 4·87	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—Eucalyptus globulus coppice with some Acacia and a few bluegum standards. Quality—II.	1913–14	..	..	Planted in 1860. Spacing—unknown. Partly felled in 1908—Area and yield not known. Age uneven and yield not separately recorded.
2. Eucalyptus globulus coppice with a belt of coppice.	7·58	Aspect—South. Slope—Moderate. Soil—Shola type. Crop—Rather open. The acacia area will be planted up with bluegum in 1928–29. Acacia areas in sub-compartment 3 (*a*) were planted up with bluegum in 1927. Quality—II.	1908 and 1913–14 1926–27 1927–28	Not known 13 14	Not known. 5,699 5,072	Planted in 1860. Spacing unknown. Only 3·56 acres felled—marked sub-compartment 2 (*a*) on map. Balance felled sub-compartment (*b*) 4·02 acres.
3. Eucalyptus globulus. Weeds with some Acacia re-growth.	3·50 1·00 4·50	Aspect—East. Slope—Steep. Soil—Shola type. Crop—3·5 acres bluegum planted in 1926. One acre where A. Melanoxylon was felled in 1922 and planted with Pinus Merkhusi which totally failed. Now a mass of better Acacia re-growth. Quality—I.	.. 1922–23 1925–26	.. 62 65	.. 81,300 11,674	Planted originally in 1860 with acacia melanoxylon. Only one acre felled. The remaining 3·5 acres felled. The above 3·5 acres planted with bluegum 9′ × 9′ in 1926. The remaining one acre will be planted in 1928.
4. Grassland ..	13·06	Aspect—South and west. Slope—Gentle to steep. Soil—Grassland type.	..	..	..	About an acre planted with Pinus khassya in 1922—a cmplete failure.
5. Eucalyptus globulus coppice. Grass	8·43 0·18 8·61	Aspect—West. Slope—Moderate. Soil—Grassland type. Crop—Rather open. Quality—II.	1914–16 Sub-divided into— 5 (*a*), 4·20 acres bluegum. 5 (*b*), 4·23 acres bluegum. 0·18 acres grass.	32	10,391	Planted 1883—9′ × 9′. Lies partly within the Marlimund catchment area fence. At one time the Municipality objected to forest operations being carried on, but presumably these objections were overcome as the compartment was worked in 1914–16. It is for the Municipality either to acquire the land or to let us work it. It is assumed it will be worked.

Brooklands, Bingham and Lascelles.

Area.—The total area is 55·50 acres, consisting of 10·00 acres of Hardwood Eucalyptus and 45·50 acres of Acacia.

Forest settlement.—All are included in the Wenlock Downs reserve forest notified in March 1900.

History.—The three plantations were bought in at auction in 1875 for arrears of assessment. Brooklands (and probably Bingham and Lascelles also) were originally planted by a private owner, a Missionary in 1862.

Brooklands (Compartments 2 to 10), Bingham, (Compartment 1) and Lascelles, (Compartment 11).

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.				ACS.	
1. (Bingham) Eucalyptus eugenoides.	5·00	Aspect—South. Slope—Moderate. Soil—Grassland type, liable to be waterlogged in the south corner. Crop—Eucalyptus eugenoides planted in 1926. Growth—patchy. Re-growth of Acacia dealbata, the original crop.	1925–26	..	3,600	Originally planted in the sixties with Acacia dealbata. Age unknown about 60 at felling in 1925–26. Planted with Eucalyptus eugenoides in 1926 casualties replaced in 1927.
2. Eucalyptus eugenoides.	5·00	Aspect—West. Slope—Gentle to moderate. Soil—Grassland type. Crop—Eucalyptus eugenoides planted in 1927.	1926–27	64	4,656	Originally planted in 1862. Planted with Eucalyptus eugenoides in 1927.
3. Acacia dealbata and melanoxylon clear-felled in 1927–28.	5·60	Aspect—North and West. Slope—Moderate to gentle. Soil—Grassland type. Crop—Nil at present. The former acacia crop was cleared in 1927–28 for planting with Eucalyptus eugenoides in June 1928.	1927–28	65	6,024	Originally planted in 1862.
4. Acacia dealbata and melanoxylon.	5·00	Aspect—West. Slope—Gentle. Soil—Grassland type. Crop—Mixture of Acacia dealbata and melanoxylon the former mostly sprawling along the ground.	..	..	..	Planted in 1862. Has never been worked.
5. Acacia dealbata and melanoxylon with a few bluegum.	5·80	Aspect—West. Slope—Gentle. Soil—Grassland. Crop—As in compartment 4 with a few Eucalyptus globulus.	..	..	..	Planted in 1862. Has never been worked.
6. Acacia dealbata with some melanoxylon.	5·00	Aspect—West. Slope—Moderate. Soil—Grassland type. Crop—Acacia dealbata sprawling along the ground.	..	..	..	Planted in 1862. Has not been worked.
7. Acacia dealbata with a few Eucalyptus globulus.	3·40	Aspect—West. Slope—Gentle. Soil—Grassland type. Crop—As in compartment 6 but with some bluegum.	..	..	..	Planted in 1862. Has not been worked.

Brooklands, etc.—cont.

Compartment.	Area.	Description.	Past yield.			Remarks
			Year.	Age.	Stacked cubic feet per acre.	
8. Acacia dealbata with some melanoxylon.	ACS. 4·60	Aspect—North-west. Slope—Gentle. Soil—Grassland type. Crop—As in compartment 6.	..	..	..	Planted in 1862. Has not been worked.
9. Acacia dealbata with a few large blue-gums.	4·80	Aspect—North and north-east. Slope—Gentle. Soil—Grassland type. Crop—Sprawling Acacia dealbata, some Acacia melanoxylon and a few large bluegums.	..	..	..	Planted in 1862. Has not been worked
10. Acacia dealbata ..	4·90	Aspect—East. Slope—Moderate. Soil—Grassland. Crop—Sprawling Acacia dealbata.	..	..	..	Planted in 1862. Has not been worked.
11. (Lascelles) Acacia dealbata.	6·40	Aspect—West. Slope—Moderate. Soil—Grassland type. Crop—Acacia dealbata. sprawling has spread by root suckers over the grass at the edges. A few large bluegums.	..	..	..	Planted in the eighteen-sixties. Has not been worked. In 1912 the area of Lascelles and Bingham together is given as 3·50. Both have largely increased in size by the Acacia spreading over the surrounding grass.

Hunt Coverts.

Area.—Consist of five jackal plantations each of 1 acre.

Forest settlement.—All are included in the Wenlock Downs Reserved Forest.

History.—They were originally laid down to provide a sheltered place in which to put bait in the days when hunting was almost entirely confined to the Home Downs and there was a corresponding scarcity of "home" jackals.

Hunt Coverts.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
1. 'New' Mixture of Hakea & Cypress.	ACS. 1·00	Aspect—North. Slope—Steep. Soil—Grassland type. Crop—Growth good fully stocked.	..	..	..	Planted in 1900–01.
2. 'Mills' Mixture of Hakea & Cypress.	1·00	Aspect—North. Slope—Steep. Soil—Grassland type. Crop—Fully stocked growth good.	..	..	..	Planted in 1900–01.
3. 'Point to Point' Cypress & Khassia oak.	1·00	Aspect—East. Slope—Moderate. Soil—Grassland type. Crop—A number of blanks due to failure of the oak, of which there is little left.	..	..	..	Planted in 1900–01.

Hunt Coverts—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
4. 'Rook's' Cypress.	1·00	Aspect—North-east. Slope—Moderate. Soil—Grassland type. Crop—Lower part a failure due to frost. Elsewhere growth poor.	..	..	..	Planted 1900–01. In 1916 gorse, broom and Acacia decurrens sown in blanks with little success.
5. 'Fife's' Cypress.	1·00	Aspect—North. Slope—Moderate. Soil—Grassland type. Crop—Growth very poor and very many failures due to frost.	..	..	..	Planted 1902–05. In 1916 gorse, broom and Acacia decurrens sown in blanks with little success.

Muthinad, Devashola and Dharma Tope.

Area.—Muthinad is 69·55 acres in extent—all bluegum.

Devashola is 10·05 acres—also all bluegum.

Dharma tope is 5·36 acres and is all bluegum.

Forest Settlement.—Muthinad was originally notified in April 1885, and was later incorporated in the Wenlock Downs Reserved Forest notified in March 1900. It is not affected by any rights or privileges.

Devashola forms part of the Devashola Reserved Forest notified in G.O. No. 224 (Forest No. 32), dated 23rd March 1886, embodied in B.P. No. 168, dated 3rd April 1886. A footpath from Manihatti to Devashola estate, passing through the reserve, is admitted as a right of way.

Dharma tope was notified in G.O. No. 322, Revenue (Forest No. 51), dated 14th March 1885, embodied in B.P. No. 1020, dated 27th March 1885.

A public right of way over the Bilical bridle path is admitted. The Todas have a right to graze their cattle and collect dead wood for fuel.

History.—Muthinad was formed in 1880–83 on the site of an old shola.

Devashola was the last of the old sholas to be exploited for firewood. It was planted in 1880 and has never been worked.

Dharma tope seems to have been formed in 1876 by the Jungle Conservancy department as an object lesson to the Badagas of the advantages of planting Eucalyptus. It has never been worked.

Muthinad.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
				YRS.		
1. Eucalyptus globulus.	7·27	Aspect—North-west. Slope—Moderate. Soil—Partly shola type, partly grassland type. Crop—Eucalyptus globulus high forest, very close grown with many suppressed and dying or dead trees and crowns of the rest badly developed owing to want of thinning. A few very fine specimens among the dominant trees.	1915–16	35	3,763	Planted 1880–83. Thinning among the dominant stems, leaving suppressed stems standing. Now divided into sub-compartments— 1 (*a*), 3·5 acs. 1 (*b*), 3·77 ,,

Muthunad—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
2. Eucalyptus globulus.	6·02	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—As in C-1.	1916-17	36	2,093	Now divided into sub-compartments— 2 (*a*), 3·50 acs. 2 (*b*), 2·52 ,,
3. Eucalyptus globulus.	5·77	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—As in C-1.	1917-18	37	3,863	Thinning among the dominant stems, leaving suppressed stems standing. Now divided into sub-compartments— 3 (*a*), 3·10 acs. 3 (*b*), 2·67 ,,
4. Eucalyptus globulus. Eucalyptus wind belt.	6·30 1·73 —— 8·03	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—As in C-1.	1918-19	38	3,298	Thinning among the dominant stems, leaving suppressed stems standing. Now divided into sub-compartments— 4 (*a*), 3·20 acs. 4 (*b*), 3·10 ,, 4 (*c*), 1·73 wind belt.
5. Eucalyptus globulus.	7·47	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—As in C-1.	1919-20	39	4,435	Thinning among the dominant stems, leaving suppressed stems standing. Now divided into sub-compartments— 5 (*a*) 3·70 acs. 5 (*b*) 3·77 ,,
6. Eucalyptus globulus. Eucalyptus wind belt.	5·40 1·47 —— 6·87	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—As in C-1.	1921-22	41	8,410	A heavier thinning.
7. Eucalyptus globulus.	7·12	Aspect—North-east. Slope—Moderate. Soil—Shola type. Crop—Heavily thinned in 1924 and now has appearance of coppice with standards.	1924-25	44	11,742	Planted 1880-83. A much heavier thinning than those carried out before. All the suppressed stuff removed.
8. Eucalyptus globulus.	6·87	Aspect—North-east. Slope—Rather steep. Soil—Shola type. Crop—As in C-7, but thinning not so heavy and less coppice has sprung up.	1923-24	43	10,800	Planted 1880-83. Thinning.
9. Eucalyptus globulus. Eucalyptus wind belt.	6·52 0·60 —— 7·12	Aspect—North. Slope—Steep. Soil—Shola type. Crop—Heavily thinned in 1925 and now has appearance of coppice with standards.	1925-26	45	11,466	Planted 1880-83. Thinning. Wind belt left unthinned.
10. Eucalyptus globulus. Eucalyptus wind belt.	6·20 0·81 —— 7·01	Aspect—North-west. Slope—Steep. Soil—Shola type. Crop—As in C-9.	1926-27	46	9,700	Thinning. Wind belt left unthinned.

Devashola.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
1. Eucalyptus globulus.	ACS. 4·75	Aspect—North. Slope—Steep. Soil—Shola type. Crop—Dense ; growth fine but crowns mostly badly developed for want of thinning : an accumulation of suppressed stems.	..	..	..	Planted 1880. Has not been worked.
2. Eucalyptus globulus.	5·30	Aspect—North. Slope—Steep. Soil—Shola type. Crop—Dense ; growth fine but crowns mostly badly developed for want of thinning : an accumulation of suppressed stems.	..	..	..	Planted 1880. Has not been worked.

Dharma Tope.

Compartment.	Area.	Description.	Year.	Age.	Stacked cubic feet per acre.	Remarks.
Eucalyptus globulus.	5·36	Aspect—North-west. Slope—Moderate. Soil—Grassland type. Crop—Eucalyptus globulus high forest. Growth good. Needs thinning.	..	..	..	Planted 1876. Has never been worked.

Dodabetta.

Area.—The total planted area is 111·39 acres, of which 100·99 is Hardwood eucalyptus, the balance being Eucalyptus globulus.

Forest settlement.—The whole is included with the Dodabetta Reserve Forest.

History.—The Hardwood area was planted between 1922 and 1924. The origin of the Eucalyptus globulus portion is unknown. It has never before been included in any working scheme. It appears to be about 30 years old.

Dodabetta.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
1. Eucalyptus eugenoides.	ACS. 11·50	Aspect—Mostly west and south-west. Eastern edge has east aspect. Slople—Steep down to the Kotagiri road, gentle to flat on the ridge. Soil—Grassland type, very poor. Crop—Stocking complete and growth generally very good considering the poor quality of the soil. A sprinkling of shola species, especially rhododendron throughout the planted area.	..	..	..	Planted 1922, 6′ × 6′.

Dodabetta—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
2. Eucalyptus eugenoides.	ACS. 15·50	Aspect—Mostly west to north-west. Slope—Gentle to steep. Soil—Grassland type, very poor. Crop—Fully stocked; growth fairly good, with backward patches, shola trees, especially rhododendron among the eucalyputus.	..	..	..	Planted 1923, 6′ × 6′.
3. Eucalyptus eugenoides. Eucalyputus punctata.	18·33 13·00 31·33	Aspect—Various. Slope—Steep to moderate in parts. Soil—Grassland type, very poor. Crop—Growth of both species fair with backward patches in the more exposed localities. Practically fully stocked. The punctata has done better, but it has the better half of the compartment. Shola species sprinkled among the Eucalyptus.	..	..	..	Planted 1924, 6′ × 6′,
4. Eucalyptus punctata.	42·66	Aspect—Generally south west. Slope—Steep to moderate. Soil—Grassland type, very poor. Crop—Almost fully stocked; growth fair, with backward patches, sprinkled among the eucalyptus.	..	..	..	Planted 1924, 6′ × 6′.
5. Eucalyptus globulus.	5·20	Aspect—West. Slope—Steep. Soil—Grassland type. Crop—Eucalyptus globulus of uneven age, mostly by appearance about 30 years. Quality—III.	..	..	..	Year of planting not known. Has not been included among the regular plantations of the Nilgiris hitherto, but is worth working and will be worked under this plan. Nothing is known of its previous history.
6. Eucalyptus globulus.	5·20	Aspect—West. Slope—Steep. Soil—Grassland type. Crop—As in C-5. Quality—III.	..	..	..	See remarks above.

Coonoor Peak.

Area.—The total area is 269·79 acres, made up of 191·73 acres of bluegum, 31·55 acres of conifers and casuarina, 9·82 acres of grass and swamp and 36·69 acres of shola.

The total planted area is 223·28 acres.

Forest Settlement.—Notified as reserved forest in G.O. No. 1407, Revenue (Forest No. 182), dated 18th December 1884, embodied in B.P. No. 86 (Forest No. 16), dated 14th January 1885.

History.—Formed by the Jungle Conservancy Department in 1872–73. The planting distance of 9 feet × 9 feet was adopted and in 1878 Colonel Beddome considered that planting at so wide an espacement had been a mistake, but by 1883 all signs of crookedness of growth had disappeared and Mr. Hutchins's measurements in that year showed that the growth per acre was equal to, if not greater than, that of similarly aged plantations of 6 feet × 6 feet espacement.

The conifers and casuarinas were planted by Mr. Gamble between 1887 and 1891.

Prior to 1896 all felling appears to have been coppice with standards often leaving a great many standards per acre. From 1896 to 1901 there was no felling at all, and in 1902 simple coppice fellings were started. Between 1902 and 1912 the upper (more accessible) part of the plantation was felled over as simple coppice, the lower part being left unworked. Since then roads have been made opening up the lower part of the plantation, and now practically the whole of the Eucalyptus area is simple coppice.

Compartments.—A detailed description follows :—

Coonoor Peak, Block I.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Eucalyptus globulus coppice. Shola	ACS. 6·98 0·20 ——— 7·18	Aspect—South-east. Slope—Gentle. Soil—Shola type. Crop—Fully stocked, growth good. Quality—I.	1895–96 1908–09 1926–27	YRS. 23 12 18	5,049 10,150 9,232	Planted 1872–73, 9′×9′. A heavy thinning. Included standards 36 years old. Simple coppice felling.
2. Eucalyptus globulus coppice. Eucalyptus globulus coppice with standards.	4·55 2·37 ——— 6·92	Aspect—South and south-east. Slope—Steep. Soil—Shola type. Crop—Very open above the road and in eastern part below the road. Quality—II.	1889–90 1911–12	17 22	1,879 5,089	Planted 1872–73. 9′×9′. A light thinning. Clear felling of 4·55 acres.
3. Eucalyptus globulus coppice.	8·18	Aspect—South-east and east. Slope—Steep. Soil—Shola type. Crop—Growth fine. Quality—II.	1888–89 1920–22	16 32	6,737 11,826	Planted 1872–73, 9′×9′. Heavy thinning. Clear felling, including standards 48 years old.
4. Eucalyptus globulus coppice.	5·18	Aspect—South, south-east and east. Slope—Steep to gentle. Soil—Shola type. Crop—Growth very fair, but about one acre is almost completely blank. Quality—III.	1893–94 1920–21	21 27	Not known 26,224	Planted 1872–73 9′×9″. Evidently a thinning. Clear felling, no standards 48 years old. Trees to be reserved. Eucalyptus eugenoides, 2. ,, anygdalina, 1.
5. Eucalyptus globulus coppice.	5·00	Aspect—East and south-east. Slope—Moderate. Soil—Shola type. Crop—Growth fine. Quality—I.	1886–87 1917–18	14 31	.. 20,316	Planted 1872–73, 9′ × 9.′ Not known; a light thinning. Clear felling, including standards 45 years old. Six sample trees (Eucalyptus globulus reserved).
6. Eucalyptus globulus coppice.	4·68	Aspect—East. Slope—Steep. Soil—Shola type. Crop—Growth good, fully stocked. Quality—I.	1891–92 1917–18	19 26	5,825 25,090	Planted 1872–73, 9′ × 9′. Leaving 50 standards per acre. Clear felling, ~~including~~ standards 45 years old. Four sample trees(Eucalyptus globulus reserved).
7. Eucalyptus globulus coppice.	3·31	Aspect—East. Slope—Very steep. Soil—Shola type. Crop—Dense. Quality—I.	1883 1890 1918–19	11 7 28	.. 5,444 18,942	Planted 1872–73, 9′ × 9′. Simple coppice. Yield recorded as 233 tons per acre. Leaving standards. Clear felling, including standards 34 years old. Two Eucalyptus globulus sample trees reserved (Nos. 34 and 35).

Coonoor Peak, Block I—*cont.*

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
8. Eucalyptus globulus coppice.	4·81	Aspect—East. Slope—Gentle. Soil—Shola type. Crop—Moderate. Quality—II.	1902–03 1919–20	30 17	8,544 8,358	Planted 1872–73, 9′ × 9′. Simple coppice, leaving a few standards on eastern boundary. Clear felling. Two sample Eucalyptus globulus reserved (Nos. 2 and 3).
9. Eucalyptus globulus coppice. Shola.	5·50 0·61 6·11	Aspect—South-east to north-east. Slope—Very steep. Soil—Shola type. Crop—Fairly dense. Quality I.	1889–90 1918–19	16 30	6,200 14,651	Planted 1872–73, 9′ × 9′. Coppice with standards. With standards 46 years old, clear felled. Eleven sample Eucalyptus globulus reserved (Nos. 23 to 33) (also two unnumbered).
10. Eucalyptus globulus and obliqua coppice.	6·56	Aspect—South-east. Slope—Moderate. Soil—Shola type. Crop—Fairly dense. Quality—I.	1892–93 1919–20	20 27	6,610 16,024	Planted 1872–73, 9′ × 9′, leaving 64 standards per acre. Clear felling, including standards 47 years old.
11. Eucalyptus globulus coppice.	5·19	Aspect—South-east. Slope Very steep. Soil Shola type. Crop Fairly dense. Quality—I.	1891–92 1918–19	19 27	5,328 24,185	Planted 1872–73, 9′ × 9′, leaving 77 standards per acre. Clear felling, including standards 46 years old. One sample Eucalyptus globulus reserved (No. 21) (also one unnumbered).
12. Eucalyptus globulus coppice.	5·06	Aspect—South-east. Slope—Steep. Soil—Shola type. Crop—Fairly dense. Quality—I.	1889–90 1922–23	17 33	6,300 7,610	Planted 1872–73, 9′ × 9′. Coppice with standards. The yield recorded is obviously wrong. The compartment was clear felled including the standards 50 years old. One sample tree reserved (No. 20).
13. Eucalyptus globulus coppice.	1·93	Aspect—East. Slope—Steep to moderate. Soil—Shola type. Crop—Rather open. Quality—I.	1888–89 1909–10 1923–24	16 19 14	4,924 11,502 9,513	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling including standards. Figure of doubtful value.
14. Eucalyptus globulus coppice.	3·43	Aspect—East to south-east. Slope—Moderate. Soil—Shola type. Crop—Rather open along eastern edge. Quality—II.	1887–88 1907–08 1923–24	15 20 16	Not known 14,869 6,950	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling including standards. Simple coppice. Two sample trees reserved (Nos. 18 and 19).
15. Eucalyptus globulus coppice.	3·68	Aspect — South-east to east. Slope—Steep to gentle. Soil—Shole type. Crop—Fairly dense; growth good. Quality—I.	1886–87 1896–97 1921–22	14 10 25	Not known 9,828 22,177	Planted 1872–73, 9′ × 9′. Coppice leaving a few standards, probably includes some standards from original planting. Clear felling, including standards. Three sample trees reserved (Nos. 4, 5 and 6).

Coonoor Peak, Block I—*cont.*

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
16. Eucalyptus globulus coppice.	3·06	Aspect—South-east. Slope—Gentle. Soil—Shola type. Crop—Somewhat open. Quality II	1886-87 1902-03 1921-22	14 16 19	Not known 7,679 9,117	Planted 1872-73, 9′ × 9′. Coppice with standard. Do. Clear felling including standards. Four sample trees reserved (Nos. 9, 10, 15, 16).
17. Eucalyptus globulus coppice.	1·62	Aspect—North-east. Slope—Gentle. Soil—Shola type. Crop—Somewhat open. Quality II.	1886-87 1919-20	14 33	Not known 13,467	Planted 1872-73, 9′ × 9′. Coppice with standards. Clear felling including standards.
18. Eucalyptus globulus coppice.	7·87	Aspect—East to north-east. Slope—Steep to gentle. Soil—Shola type. Crop—Dense. Quality I.	1892-93 1922-23	20 30	Not known 19,731	Planted 1872-73, 9′ × 9′. Coppice with standards. Clear felling including standards. Two sample trees reserved (Nos. 12 and 17).
19. Eucalyptus globulus coppice.	1·69	Aspect—North-east to east. Slope—Gentle. Soil—Shola type. Crop—Good, but with open patches. Quality I.	1890-91 1912-13 1924-25	18 22 12	Not known 16,118 6,177	Planted 1872-73, 9′ × 9′. Doubtless includes standards.
20. Eucalyptus globulus coppice.	3·31	Aspect—East. Slope—Gentle to steep. Soil—Shola type. Quality II.	1887-88 1900-01 1913-14	15 13 13	Not known Do. 10,513	Planted 1872-73, 9′ × 9′. Clear felling including standards.
21. Eucalyptus globulus coppice. Shola.	1·68 3·31 4·99	Aspect—East to south-east. Slope—Steep. Soil—Shola type. Crop—Dense. Quality I.	1895-96 1913-14	23 18	10,761 28,695	Planted 1872-73, 9′ × 9′. Coppice with standards. Clear felling including standards. There is doubt about accuracy of this figure.
22. Eucalyptus globulus coppice. Shola.	6·62 0·32 6·94	Aspect—North-east to south-east. Slope—Gentle. Soil—Shola type. Crop—Fully stocked. Quality I.	1887-88 1908-09 1924-25	15 21 16	Not known 15,755 9,118	Planted 1872-73, 9′ × 9′. Coppice with standards. Clear felling. Do.
23. Eucalyptus globulus coppice.	4·00	Aspect—East and south-east. Slope—Gentle. Soil—Shola type. Crop—Rather open in parts. Quality II.	1888-89 1905-06 1924-25	16 17 19	Not known 10,600 6,540	Planted 1872-73, 9′ × 9′. Coppice with standards. Clear felling including standards.
24. Eucalyptus globulus coppice.	7·44	Aspect—South and south-east. Slope—Gentle. Soil—Shola type. Crop—Moderate. Quality II.	1883 1902-03 1923-24	11 19 21	 12,300 7,613	Planted 1872-73, 9′ × 9′. Simple coppice yield recorded, with compartments 7 and 8 as 233 tons per acre. Simple coppice. Do.

Coonoor Peak, Block I—*cont.*

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
	ACS.			YRS.		
25. Eucalyptus globulus coppice.	4·43	Aspect—South-east. Slope—Steep. Soil—Shola type. Crop—Fair. Quality II.	1894–95 1913–14	22 19	9,446 24,027	Planted 1872–73, 9′ × 9′. Coppice with standards (425 standards left). Clear felling including standards. One sample tree reserved (No. 22).
26. Eucalyptus globulus coppice.	3·37	Aspect—East and south-east. Slope—Steep. Soil—Shola type. Crop—Fairly dense. Quality II.	1889–90 1913–14	17 24	9,500 15,418	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling including standards.
27. Eucalyptus globulus coppice.	4·25	Aspect—East. Slope—Very steep. Soil—Shola type. Crop—Dense Quality I.	1886–87 1906–07 1923–24	14 19 17	Not known 12,212 11,650	Planted 1872–73, 9′ × 9′. Clear felling including standards, probably (a few left). Clear felling and some standards included in the yield.
28. Eucalyptus globulus coppice.	4·24	Aspect—North-west. Slope—Steep. Soil—Red clayey loam. Crop—Fair. Quality II.	1895–96 1912–13	23 17	7,528 11,795	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling including standards.
29. Eucalyptus globulus coppice.	5·94	Aspect—East and south-east. Slope—Gentle. Soil—Red clayey loam. Crop—Dense. Quality I.	1889–90 1905–06 1926–27	17 16 21	7,155 9,781 13,899	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling, but a belt of standards left. Clear felling including above standards.
30. Eucalyptus globulus coppice. Shola	2·06 0·18 2·24	Aspect—South-east. Slope—Level. Soil—Shola type. Crop—Fairly stocked. Quality II.	1894–95 1912–13	22 18	8,875 17,359	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling including standards.
31. Eucalyptus globulus coppice.	4·94	Aspect—South-west. Slope—Moderate. Soil—Shola type. Crop—Good. Quality I.	1887–88 1906–07 1927–28	15 19 21	Not known 9,879 9,500	Planted 1872–73, 9′ × 9′. Clear felling, probably including some standards. Clear felling.
32. Eucalyptus globulus coppice. Shola	5·43 0·31 5·74	Aspect—South and south-east. Slope—Moderate. Soil—Shola type. Crop—Fairly dense. Quality I.	1893–94 1912–13	21 19	9,300 11,886	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling including standards.
33. Eucalyptus globulus coppice (with some eucalyptus calophylla coppice).	4·18	Aspect—South-east to north-east. Slope—Gentle. Soil—Shola type. Crop—Fairly stocked. Quality II.	1890–91 1911–12	18 21	6,300 14,569	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling including standards.
34. Eucalyptus globulus coppice.	6·06	Aspect—South-east. Slope—Gentle. Soil—Red clayey loam. Crop—Moderate. Quality II.	1886–87 1903–04 1927–28	14 17 24	Not known 10,050 7,307	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling. Do.

Coonoor Peak, Block I—*cont.*

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
	ACS.			YRS.		
35. Eucalyptus globulus coppice.	6·56	Aspect—North-east. Slope—Gentle. Soil—Shola type. Crop—Rather open. Quality II.	1893–94 1913–14	21 20	8,110 20,326	Planted 1872–73, 9′ × 9′. Coppice with 83 standards left per acre. Clear felling
36. Eucalyptus globulus coppice.	4·19	Aspect—North-west. Slope—Moderate. Soil—Red clayey loam. Crop—Moderate. Quality II.	1886–87 1907–08 1915–16	14 21	Not known 2,959 18,071	Planted 1872–73, 9′ × 9′. Coppice with standards. A light thinning of very uneven age. Clear felled. {A large Eucalyptus eugenoides standard.
37. Eucalyptus globulus coppice.	6·37	Aspect—South, south-east. Slope—Moderate. Soil—Shola type. Crop—Good. Quality I.	1888–89 1909–10 1924–25	16 21 15	6,683 11,680 7,200	Planted 1872–73, 9′ × 9′. Coppice with standards. Clear felling. Do.
38. Eucalyptus globulus coppice. Shola	5·19 0·18 5·37	Aspect—South-east. Slope—Moderate. Soil—Shola type. Crop—Moderate. Quality II.	1892–93 1916–17	20 24	3,116 13,480	Planted 1872–73, 9′ × 9′. Coppice with standards (52 to the acre). Clear felling.
39. Eucalyptus globulus coppice.	5·87	Aspect—South-east. Slope—Steep to very steep. Soil—Shola type. Crop—Growth excellent, stocking deficient in parts. Quality I.	1886–87 1909–10 1925–26	14	Not known. .. 18,010	Planted 1872–73, 9′×9′. Coppice with standards. Two acres clear felled yielding 3,050 cubic feet per acre. Age uneven clear felled.
40. Eucalyptus globulus coppice.	5·25	Aspect—South-east. Slope—Steep to very steep. Soil—Red clayey loam. Crop—Dense. Quality I.	1886–87 1910–11 1925–26	14 24 15	Not known. 14,838 7,392	Planted 1872–73, 9′×9′. Coppice with standards. Clear felling. Do.

Coonoor Peak, Block II (Teneriffe).

Compartment.	Area.	Description.	Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Shola .. .. Grass .. .. .. Casuarina suberosa .. Calitris .. .. Calitris and cypress. Grevellia robusta ..	31·58 9·82 10·50 9·07 1·86 0·56 63·39	Aspect—Various. Slope—Mostly very steep. Soil—Red clayey loam, very rocky, with large laterite boulders on the surface. Crop—The shola is mostly scrub with some Acacia dealbata. On the higher slopes open scrub mostly Rhododendron.	..	..	..	Planted 1887–91. Has not been worked.
Casuarina is a failure. Much of it still present excessively ill-grown and stunted. Calitris and Cypress badly grown and much damaged by wind. Abundant natural re-generation of Calitris wherever the canopy admits enough light. Grevillea very badly grown : prefers a lower attitude.						
2. Calitris and pine..	9·56	Pinus (longifolia and maritima) and a few insignis very badly grown and suppressed in mixture with Calitris.	..	..	..	Planted 1887–91. Subdivided into— ACS. 2 (*a*) .. .. 3·20 2 (*b*) .. .. 3·20 2 (*c*) .. .. 3·16

Black Bridge and Rock.

Area.—The area is 36·68 acres—all bluegum.

Forest settlement.—Lies in the Black Bridge Reserve Forest notified in G.O. No. 1321 Revenue (Forest No. 172), dated 1st February 1884, embodied in B.P. No. 4276 (Forest No. 446) dated 12th December 1884.

The road from Wellington to Kotagiri (Old Forest Road) is a right of way. Two plots of land measuring 2·80 acres and 0·55 acre are leased to the Wellington Gymkhana Club for the Golf Course.

History.—Formed by the Jungle Conservancy Department in 1874–75.

The whole area, after some irregular working in previous years, was clear felled between 1911 and 1918 and now stands as simple coppice.

Compartments.—A detailed description follows.

Black Bridge and Rock (Block III).

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
1. Eucalyptus globulus coppice.	6·50	Aspect—South. Slope—Moderate. Soil—Stiff clay; moderate depth. Crop—Moderate. Quality II.	1897–01 1911–12	 12	Not known 4,000	Planted 1874–75, 6′×6′. Simple coppice.
2. Eucalyptus globulus coppice.	7·56	Aspect—South. Slope—Moderate. Soil—Stiff clay ; moderate depth. Crop—Moderate. Quality II.	1897–01 1913–14	 15	Not known 5,855	Planted 1874–75, 6′×6′. Simple coppice.
3. Eucalyptus globulus coppice.	7·81	Aspect—South. Slope—Moderate. Soil—Stiff clay ; fairly deep. Crop—Fair. Quality II.	1897–01 1915–16	 17	Not known 6,042	Planted 1874–75, 6′×6′. Simple coppice.
4. Eucalyptus globulus coppice.	8·56	Aspect—South. Slope—Moderate. Soil—Stiff clay ; fairly deep. Crop—Fair. Quality II.	1897–01 1916–17	 17	Not known 8,663	Planted 1874–75, 6′×6′. Simple coppice.
5. Eucalyptus globulus coppice.	6·25	Aspect—South. Slope—Steep. Soil—Stiff clay ; fairly deep. Crop—Fair. Quality II.	1897–01 1916–17	 17	Not known 8,292	Planted 1874–75, 6′×6′. Simple coppice.

Bandy shola.

Area.—The total area is 94·13 acres made up of 29·54 acres of bluegum, 44·89 acres of Hardwood Eucalyptus, 10·81 acres of Acacia, 1 acre of Cryptomeria japonica, and 7·89 acres of grass and swamp.

The total planted area is 86·24 acres.

Forest settlement.—Notified in G.O. No. 1321, Revenue (Forest No. 172), dated 1st December 1884, embodied in B P. No. 4276 (Forest No. 446), dated 12th December 1884.

The cart road from Coonoor to Dolphin's Nose and Hallakarai is an admitted right of way.

History.—Planted in the sixties with Acacia melanoxylon and Acacia dealbata ; of the early history little is known. At one time the Acacia melanoxylon appears to have been exploited for railway sleepers. From about 1890 onwards the plantation was fairly regularly worked for fuel. Acacia melanoxylon, which originally appears to have formed the main crop largely died out

leaving large blanks. From 1916—20 the felled compartments were planted up with bluegum, and from 1924 onwards Hardwood eucalyptus have been planted to replace the felled Acacia.

Compartments.—A detailed description follows :—

Bandy Shola.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
	ACS.			YRS.		
1. Eucalyptus eugenoides.	2·94	Aspect—South-east. Slope—Gentle. Soil—Shola type. Crop—Fully stocked. Growth good with dense undergrowth of Acacia and weeds. Will shortly need thinning.	1887-88 1903-04 1923-24	.. 16 20	1,807 2,761 2,163	Originally planted in the 1860's with Acacia melanoxylon (mainly) and some Acacia dealbata. Planted with Eucalyptus eugenoides 6'×6' in 1924-25. Two large Pinus longifolia near the forest lines. Probably the biggest conifers on the Nilgiris.
2. Eucalyptus paniculata.	1·94	Aspect—South-east. Slope—Moderate. Soil—Shola type. Crop—Fully stocked. Growth good.	1902-03 1923-24	.. 21	4,253 1,856	Originally planted in the 1860's with Acacia melanoxylon and dealbata with a small patch of Casuarina suberosa. Planted with Eucalyptus punctata 6'×6' in 1924-25.
3. Eucalyptus eugenoides.	3·37	Aspect—South-east. Slope—Moderate. Soil—Shola type. Crop—Fully stocked. Growth good.	1892-93 1908-09 1924-25	.. 16 16	1,877 2,311 4,255	Originally planted with Acacias in the 1860's. Planted 6'×6' with Eucalyptus eugenoides in 1925-26.
4. Eucalyptus eugenoides.	3·56	Aspect—South-west. Slope—Moderate. Soil—Shola type. Crop—Well stocked. Growth good.	1925-26	15	2,022	Originally planted with Acacias in the 1860's. Planted 6'×6' with Eucalyptus eugenoides in 1925-26. Earlier yields not recorded.
5. Eucalyptus eugenoides and Eucalyptus paniculata.	1·81	Aspect—North-west. Slope—Moderate. Soil—Shola type. Crop—Fairly well stocked. Growth good.	1894-95 1910-11 1925-26	.. 16 15	2,933 7,042 663	Originally planted with Acacias in the 1860's. Planted with Eucalyptus eugenoides and paniculata 6'×6' in 1925-26.
6. Eucalyptus eugenoides.	2·88	Aspect—Almost level. Slope—Almost level. Soil—Shola type. Crop—Mostly well stocked. One or two blanks.	1894-95 1909-10 1924-25	.. 15 15	2,288 3,185 3,083	Originally planted with Acacias in the 1860's. Planted 6'×6' with Eucalyptus eugenoides in 1925-26.
7. Eucalyptus punctata.	1·75	Aspect—South-east. Slope—Moderate. Soil—Shola type. Crop—Well stocked except for 3 small blank areas.	1924-25	16	3,086	Originally planted with Acacias in the 1860's. Planted Eucalyptus punctata 6'×6' in 1925-26. Earlier yields not available.
8. Eucalyptus punctata. Swamp	5·56 0·44 6·00	Aspect—South-east and west. Slope—Moderate. Soil—Shola type. Crop—Fully stocked. Growth good.	1888-89 1907-08 1923-24	.. 19 16	2,412 2,663 3,148	Originally planted with Acacias in the 1860's. Planted 6'×6' with Eucalyptus punctata in 1924-25.

Bandy shola—cont.

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
9. Eucalyptus punctata.	ACS. 3·19	Aspect—South-east. Slope—Moderate. Soil—Shola type. Crop—Fully stocked; a few bluegums at the lower end.	1885–86 1900–01 1923–24	YRS. .. 14 23	Not known 2,689 1,760	Originally planted with Acacias in the 1860's. Planted with Eucalyptus punctata in 1924–25.
10. Eucalyptus globulus. Swamp .. .. Grass	3·56 0·69 0·57 4·82	Aspect—South-west. Slope—Moderate to gentle. Soil—Shola type. Crop—Eucalyptus globulus with dense Acacia dealbata windgrowth. In north-west corner pure Acacia dealbata.	1894–95 1911–12	.. 17	1,474 4,584	Originally planted with Acacias in 1860's. Bluegum planted in 1916–17.
11. Eucalyptus globulus. Acacia dealbata ..	2·00 0·75 2·75	Aspect—South-west to south. Slope—Moderate. Soil—Shola type. Crop—Eucalyptus globulus with dense Acacia undergrowth. Western one-third of compartment contains only Acacia.	1895–96 1913–14	.. 18	1,652 4,232	Originally planted with Acacias in the 1860's. Planted with bluegum in 1916–17—9'×9'.
12. Eucalyptus globulus and Acacia dealbata.	3·06	Aspect—South. Slope—Steep to moderate. Soil—Shola type. Crop—Eucalyptus globulus with Acacia dealbata undergrowth ; in places Acacia forms the only crop.	1916–17	19	5,584	Originally planted with Acacias in the 1860's. Planted with bluegum 9'×9' in 1917–18. Earlier yields not known.
13. Eucalyptus globulus.	1·37	Aspect—South. Slope—Steep to moderate. Soil—Shola type. Crop—Eucalyptus globulus which has failed in many places leaving only Acacia.	1915–16	16	6,394	Originally planted with Acacias in 1860's. Planted with bluegum 9'×'9 in 1916–17. Earlier yields not known.
14. Eucalyptus globulus.	1·56	Aspect—South. Slope—Gentle. Soil—Shola type. Crop—Eucalyptus globulus with dense Acacia undergrowth.	1915–16	17	3,461	Originally planted with Acacias in the 1860's. Planted 9' × 9' with bluegum in 1916–17. Earlier yields not known.
15. Eucalyptus globulus.	3·31	Aspect—South and south-east. Slope—Gentle to moderate. Soil—Shola type. Crop—Eucalyptus globulus with dense Acacia underwood. In many places Acacia forms the main crop.	1916–17	16	3,081	Originally planted with Acacias in the 1860's. Planted 9' × 9' with bluegum in 1917–18. Earlier yields not known.
16. Eucalyptus globulus.	1·87	Aspect—South. Slope—Moderate to steep. Soil—Shola type. Crop—Bluegum has largely failed leaving in many places Acacia as the main crop.	1916–17	16	4,524	Originally planted with Acacias in 1860's. Planted 9' × 9' with bluegum in 1917–18. Earlier yields not known.

Bandy shola—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
17. Eucalyptus globulus. Swamp ..	2·06 0·19 2·25	Aspect—South. Slope—Almost level. Soil—Shola type. Crop—Bluegum has failed in many places leaving Acacia as the main crop.	..	..	..	Originally planted with Acacias in the 1860's. Planted with bluegum 9′ × 9′ in 1917–18.
18. Eucalyptus globulus.	1·93	Aspect—South-west. Slope—Steep to gentle. Soil—Shola type. Crop—Bluegum has failed in many places leaving Acacias as the main crop.	1912–13	16	6,216	Originally planted with Acacia in 1860's. Planted with bluegum 9′ × 9′ in 1916–17. Earlier yields not recorded.
19. Acacia dealbata coppice.	3·75	Aspect—East and south-east. Slope—Moderate. Soil—Shola type. Crop—Dense growth of Acacia dealbata coppice and root suckers.	1917–18	20	2,528	Planted in the 1860's. A few bluegums planted in 1919–20 but all failed. Earlier yields not recorded.
20. Acacia dealbata coppice. Swamp	4·25 0·44 4·69	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—Dense growth of Acacia dealbata coppice and root suckers.	1917 18	18	1,666	Planted in the 1860's. Appears to have been pitted for planting with bluegum in 1919–20 but no planting was done. Earlier yields not known.
21. Eucalyptus globulus. Grass	4·44 0·37 4·81	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—Fairly well stocked with bluegum with dense undergrowth.	1917–18	16	3,842	Originally planted with Acacias in the 1860's Planted with bluegum 9′×9′ in 1919–20. Earlier yields not recorded.
22. Acacia dealbata coppice. Grass	2·06 1·43 3·49	Aspect—North. Slope—Steep to moderate. Soil—Shola type. Crop—Fairly dense.	..	..	..	Planted in the 1860's. Past yield not recorded.
23. Eucalyptus globulus. Grass	1·87 0·12 1·99	Aspect—North. Slope—Steep. Soil—Shola type. Crop—Fairly well stocked with Eucalyptus with undergrowth of Acacia.	1887–88 1901–02 1917–18	.. 14 16	941 2,118 3,433	Originally planted with Acacia in the 1860's. Planted with bluegum 9′×9′ in 1919–20. Coppice with standard. Almost clear-felling. Clear-felling.
24. Eucalyptus globulus. Swamp .. .. Grass	2·51 0·44 3·20 6·15	Aspect—North. Slope—Steep. Soil—Shola type. Crop—Fairly well stocked with bluegum with acacia underwood. A few Eucalyptus gunnii in the swamp planted about 1922. The M.F.C. camp occupies grass area.	1887–88 1903–04 1917–18	.. 16 14	4,008 4,550 3,621	Originally planted with Acacia in the 1860's. Planted with bluegum 9′ × 9′ in 1919–20. Coppice with standard. Almost clear-felling. Clear-felling.
25. Eucalyptus paniculata.	2·72	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—Practically fully stocked. Growth good. Acacia regrowth will need cutting back in 1928–29.	1925–26	17	1,853	Originally planted with Acacia in the 1860's. Planted with Eucalyptus paniculata 9′ × 9′ in 1926–27. No reliable records of earlier felling. The bluegum portion should be felled and planted with hardwoods in 1928–29.

Bandyshola—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
26. Eucalyptus eugenoides.	2·75	Aspect—North. Slope—Moderate. Soil—Red clayey loam. Crop—Not quite fully stocked. Strong regrowth of Acacia. Will require replacement of a few casualties and thorough weeding in 1928–29.	1925–26	..	2,269	Originally planted with Acacia in the 1860's. Planted with Eucalyptus eugenoides 9′ × 9′ in 1926–27 and some casualties replaced in 1927–28. Age unknown: results of earlier fellings not known.
27. Eucalyptus eugenoides.	1·93	Aspect—North-east. Slope—Moderate. Soil—Red clayey loam. Crop—Practically fully stocked. Acacia regrowth will need cutting back in 1928–29.	1925–26	18	2,736	Originally planted with Acacia in the 1860's. Planted 9′ × 9′ with Eucalyptus eugenoides in 1926–27. Results of earlier fellings not known.
28. Eucalyptus eugenoides. Cryptomeria japonica.	4·80 1·00 5·80	Aspect—North to north-east. Slope—Steep to moderate. Soil—Red clayey loam. Crop—Fairly well stocked (both species). Strong Acacia regrowth. Will need cutting back in 1928–29 and a few casualties. Must be replaced.	1925–26	15	3,085	Originally planted with acacia in the 1860's. Planted 9′ × 9′ with Eucalyptus eugenoides and (1ac) with Cryptomeria japonica in 1926–27. Results of earlier fellings not known.
29. Eucalyptus punctata.	2·44	Aspect—North. Slope—Moderate to steep. Soil—Red clayey loam. Crop—Almost fully stocked. Regrowth of Acacia needs cutting back in 1928–29.	1926–27	17	2,065	Originally planted with Acacia in the 1860's. Planted 9′ × 9′ with Eucalyptus punctata in 1927–28. Results of earlier fellings not known.
30. Eucalyptus paniculata.	3·25	Aspect—North. Slope—Fairly steep. Soil—A red clayey loam. Crop—Fully stocked. Acacia regrowth needs cutting back in 1928–29.	1926–27	18	1,311	Originally planted with acacia in the 1860's. Planted 9′ × 9′ with Eucalyptus paniculata in 1927–28. Results of earlier fellings not known.

BLEAKHOUSE.

Area.—The total area is 55·85 acres, made up of 6·31 acres of bluegum and 49·54 acres of Acacia.

Forest settlement.—Notified in G.O. No. 322, Revenue (Forest No. 51), dated 14th March 1895, embodied in B.P. No. 1020, (Forest No. 189), dated 27th March 1885.

History.—Planted between 1856 and 1863 with Acacia melanoxylon and dealbata, chiefly the former. Acacia melanoxylon has largely died out and Acacia dealbata has filled up the blanks caused. The early history of the plantation is obscure, it appears to have been irregularly worked from time to time. Between 1909 and 1920 the whole plantation was clear-felled (except for a few bluegum standards). Compartment 10 felled in 1919–20 was planted up with bluegum in 1920. The rest of the plantation stands as Acacia coppice and root sucker growth with occasional bluegum standards.

Compartments.—A detailed description follows :—

Bleakhouse.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
1. Acacia dealbata coppice.	7·62	Aspect—South-east .. Slope—Very steep. Soil—Red clayey loam. Crop—Dense acacia re-growth with one or two Eucalyptus globulus standards. Acacia coppice about 19 years old (in 1928).	..	..	..	Planted between 1856 and 1863 with Acacia melanoxylon and Acacia dealbata. Was originally divided into seven compartments but was divided into 10 under Mr. Cox's working plan of 1914. It is not therefore possible to give details of yield for each compartment.
2. Acacia dealbata coppice.	6·37	Aspect—South-east .. Slope—Steep. Soil—Red clayey loam. Crop—17 years old acacia coppice, dense with a few bluegum standards.	..	..	..	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2,447 cubic feet per acre.
3. Acacia dealbata coppice.	6·20	Aspect—South .. .. Slope—Steep. Soil—Red clayey loam. Crop—26 (in 1928) years old acacia coppice, very dense, with a little Eucalyptus globulus coppice and one or two bluegum standards.	..	..	..	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2,447 cubic feet per acre.
4. Acacia dealbata coppice.	4·43	Aspect—South-south, west. Slope—Steep. Soil—Red clayey loam. Crop—26 (in 1928) years old Acacia coppice, with a few bluegum coppice shoots and standards.	..	..	..	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2,447 cubic feet per acre.
5. Acacia dealbata and Eucalyptus globulus coppice.	5·37	Aspect—South .. .. Slope—Steep. Soil—Red clayey loam. Crop—26 (1928) years old acacia coppice with some bluegum coppice.	..	..	..	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2447 cubic feet per acre.
6. Acacia dealbata coppice.	5·68	Aspect—South .. .. Slope—Steep. Soil—Shola type. Crop—15 (in 1928) years old Acacia coppice, dense.	1913–14	23	3,485	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2,447 cubic feet per acre.
7. Acacia dealbata coppice with some Acacia melanoxylon.	4·75	Aspect—South .. .. Slope—Steep. Soil—Shola type. Crop—15 (in 1928) years old Acacia coppice, fairly dense	1913–14	23	8,513	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2,447 cubic feet per acre.

Bleakhouse—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
8. Acacia dealbata coppice.	4·56	Aspect—North-west—west. Slope—Steep. Soil—Shola type. Crop—12 years (in 1928) old Acacia coppice with a little Eucalyptus globulus.	1916–17	..	2,447	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2,447 cubic feet per acre.
9. Acacia dealbata coppice.	4·56	Aspect—North to north-west. Slope—Steep. Soil—Shola type. Crop—12 years (in 1928) old Acacia coppice.	1916–17	17	Not known.	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2,447 cubic feet per acre.
10. Eucalyptus globulus.	6·31	Aspect—South to south-west. Slope—Steep to moderate. Soil—Red clayey loam. Crop—Eucalyptus globulus planted in 1920–21 with underwood of Acacia regrowth.	1919–20	17	3,899	Taking the whole block the average yield per acre in the rotation ending 1891 was 1,300 cubic feet (coppice with standards). In the next rotation (clear-felling) the yield was 2,447 cubic feet per acre. Eucalyptus globulus planted 9′×9′ in 1920–21.

SPRINGFIELD.

Area.—The total area is 28·69 acres, made up of 5·25 acres of Hardwood eucalyptus, 22·57 acres of Acacia, and 0·87 acres of shola.

The total planted area is 27·82 acres.

Forest Settlement.—Notified in G.O. No. 1321, Revenue, (Forest No. 172), dated 1st January 1884, embodied in B.P. No. 4276, (Forest No. 446), dated 12th December 1884.

History.—Planted in the sixties with Acacia melanoxylon and Acacia dealbata. The former has almost entirely died out. Eucalyptus globulus is found in patches, probably planted to fill blanks. First felled in 1883 as coppice with standards. Compartment 1 was felled in 1926–27 and was planted with hardwoods in 1927. Compartments 2 and 3, felled in the 1927 monsoon. Compartments 4 and 5 stand as Acacia coppice with patches of bluegum coppice.

Compartment.—A detailed description follows.

Springfield.

Compartments.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.					
1. Eucalyptus punctata.	5·25	Aspect—North. Slope—Moderate. Soil—Sholr type. Crop—Eucalyptus punctata planted 1927–28. Fully stocked. Will require careful tending in 1928–29 by cutting back Acacia regrowth.	1926 27	16	4,743	Originally planted with Acacia melanoxylon and dealbata in the 1860. By 1914 most of the Acacia melanoxylon had died out. Was originally divided into three compartments now divided into five. Over the whole block the average yield per acre
		has been as follows: in the rotation ending 1892, 395 cubic feet per acre (thinning) in rotation ending 1910–11, 3,409 cubic feet per acre. The whole plantation was felled first in 1883—no record of yield.				

Springfield—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
2. Acacia dealbata coppice (with a little bluegum coppice).	5·25	Aspect—North. Slope—Moderate. Soil—Shola type. Crop—Felled in 1927-28 and now waiting to be planted with Eucalyptus eugenoides.	1927-28	YRS. 17	2,084	Originally planted with Acacia melanoxylon and dealbatta in the 1860. By 1914 most of the Acacia melanoxylon had died out. Was originally divided into three compartments now divided into five.
		Over the whole block the average yield per acre has been as follows : in the rotation ending 1892, 395 cubic feet per acre (thinning); in rotation ending 1910-11, 3,409 cubic feet per acre. The whole plantation was felled first in 1883—no record of yield.				
3. Acacia dealbata coppice (and some bluegum coppice).	5·82	Aspect—North-west. Slope—Gentle. Soil—Shola type. Crop—Felled in 1927-28 and now waiting to be planted with Eucalyptus eugenoides.	1927-28	17	5,464	See remarks above.
4. Acacia dealbata coppice (with a good deal of bluegum coppice on part of the area). Shola	5·75 0·42 6·17	Aspect—North-west. Slope—Moderate. Soil—Shola type. Crop—Dense and well grown. About 20 years old.	..	..	..	See remarks above.
5. Acacia dealbata coppice. Shola	5·75 0·45 6·20	Aspect—North. Slope—Gentle. Soil—Shola type. Crop—Dense, about 18 years old.	..	..	..	See remarks above,

TEPPAKUTCHI.

Area.—24·75 acres—All bluegum.

Forest Settlement.—Constituted Reserve Forest in G.O. No. 282, Revenue (Forest No. 52), dated 21st March 1892, embodied in B.P. Forest No. 201, dated 27th April 1892.

The following right is admitted :—

Public right of way over road entering the reserve on west side of S. No. 130 and leaving at eastern corner of S. No. 134.

History.—Formed by the Jungle Conservancy department in 1870. Remained unworked till 1925. In that and the following year 2 acres each of about an acre were sold standing, showing that a small profit can be derived from working the plantation.

Compartment.—It has now been divided into twenty compartments (not yet worked on the ground).

Teppakutchi.

1 Eucalyptus globulus coppice.	1·00	Aspect—North-west. Slope—Steep. Soil—Shola type. Crop—Eucalyptus globulous coppice 3 years old (in 1928) coppice reproduction some what scanty.	1925-26	YRS. 55	16,260	The plantation was planted in 1870 and was never worked till 1925-26 when the present compartment 1 was sold standing for Rs. 227. The following year the present compartment 2 was sold standing (with a few trees left over in compartment 1) for Rs. 210. Under Mr. Cox's plan the plantation was divided into three compartments. It has now been divided into twenty compartments. The plantation has suffered from fire from time to time.

Teppakutchi—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Years.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
2. Eucalyptus globulus coppice.	1·22	Aspect—North-west. Slope—Steep. Soil—Shola type. Crop—Eucalyptus globulus coppice 3 years old (in 1928) coppice reproduction somewhat scanty.	1926–27	56	Sold standing.	The plantation was planted in 1870 and was never worked till 1925–26 when the present compartment 1 was sold standing for Rs. 227. The following year the present compartment 2 was sold standing (with a few trees left over in compartment 1) for Rs. 210. Under Mr. Cox's plan the plantation was divided into three compartments. It has now been divided into twenty compartments. The plantation has suffered from fire from time to time.
3. Eucalyptus globulus high forest.	1·12	Aspect—North-west. Slope—Steep. Soil—Shola type. Crop—Fairly well stocked bluegum high forest, growth tall and stems thin, crowns badly developed for the most part.	..	..	..	See remarks above. Has not been worked.
4. Eucalyptus globulus high forest.	1·30	As above (compartment 3) but soil poorer.	..	..	..	See remarks above. Has not been worked.
5. Eucalyptus globulus high forest.	1·40	As above (compartment 3) but soil grassland type.	..	..	..	See remarks above. Has not been worked.
6. Eucalyptus globulus high forest.	1·50	As above (compartment 3) but soil grassland type.	..	..	..	See remarks above.
7. Eucalyptus globulus high forest.	1·52	As above (compartment 3) but soil grassland type.	..	..	..	See remarks above.
8. Eucalyptus globulus high forest.	1·63	As above (compartment 3) but soil grassland type.	..	..	..	See remarks above.
9. Eucalyptus globulus high forest.	1·20	As above (compartment 3) soil shola type.	..	..	..	See remarks above.
10. Eucalyptus globulus high forest.	1·20	As above (compartment 3) soil shola type.	..	..	..	See remarks above.
11. Euc-Globulus high forest.	1·25	As above (C. 3) soil shola type.	..	..	..	See remarks above.
12. Euc-Globulus high forest.	1·20	As above (C. 3) soil shola type.	..	..	..	See remarks above.
13. Euc-Globulus high forest.	1·00	As above (C. 3) soil shola type.	..	..	..	See remarks above.

Tepppkutchi—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.					
14. Euc-Globulus high forest.	1·00	As above (C. 3) soil shola type.	..	..	..	See remarks above.
15. Euc-Globulus high forest.	1·22	As above (C. 3) soil shola type.	..	..	..	See remarks above.
16. Euc-Globulus high forest.	1·24	As above (C. 3) soil shola type.	..	..	..	See remarks above.
17. Euc-Globulus high forest.	1·20	As above (C. 3) soil shola type.	..	..	..	See remarks above.
18. Euc-Globulus high forest.	1·20	As above (C. 3) soil shola type.	..	..	..	See remarks above.
19. Euc-Globulus high forest.	1·20	As above (C. 3) soil shola type.	..	..	..	See remarks above.
20. Euc-Globulus high forest.	1·15	As above (C. 3) soil shola type.	..	..	..	See remarks above.

Newman, Rallia and Little Rallia.

Area.—Newman consists of 26·60 acres of bluegum and 3·29 acres of shola—total area 29·89 acres. Little Rallia is 9·40 acres—all bluegum: Rallia has 55·35 acres of bluegum, 1·06 acres of acacia, 46·35 acres of conifers, etc., and 13·56 acres of grass and swamp. The total planted area of Rallia is 102·76 acres.

Forest Settlement.—Newman was notified in G.O. No. 188, Revenue (Forest No. 23), dated 13th March 1886, embodied in B.P. No. 769/152, dated 30th March 1886.

Little Rallia was notified in G.O. No. 349, Revenue (Forest No. 107), dated 20th April 1891, embodied in B.P. No. 315, dated 18th July 1891.

Rallia was notified in G.O. No. 170, Revenue (Forest No. 28), dated 23rd February 1892, embodied in B.P. No. 110, dated 14th March 1892.

Rallia addition was notified in G.O. No. 1184, Revenue (Forest No. 289), dated 28th November 1892, embodied in B.P. No. 720, dated 17th December 1892 (acquired for erection of a charcoal kiln).

The following rights are admitted in these reserves :—

(1) *Little Rallia.*—Right of way over bridlepath from Batatti to Honnathalai.
(2) Right of way over a footpath from Bettumund to Hosahatti.
(3) *Rallia.*—Field No. 510 is an enclosure with right of access for men and cattle over a path leading to it.
(4) A footpath from Bandumi.
(5) Right of way from Bandumi to Berhatti.

History.—Newman and Little Rallia were formed in 1870–71 by the Jungle Conservancy department. An attempt to work Newman for charcoal was made in 1896. Apart from that the plantations remained unworked till 1915. Between that date and 1925 the whole plantation was worked over by thinning it, the outturn being converted into charcoal. In 1925–26 treatment as high forest was abandoned and in that and the following year the remaining trees in compartments 2 and 3 were felled leaving these compartments as simple coppice. The rest of the plantation stands as high forest in which thinnings of greater or less intensity have been carried out between 1915 and 1925.

Little Rallia remained unworked till 1927–28 when the present compartment 1 was clear felled for charcoal manufacture.

Rallia was planted in 1872, espacement 9′ × 9′. Eucalyptus and acacia were planted in alternate broad strips. From 1888 the plantation was worked as coppice with standards for a few years, but the records are scanty.

From 1905 onwards, till about 1911 about 7·25 acres (in compartments 1 and 2) were clear felled for charcoal manufacture.

Since then the plantation has remained unworked.

Compartments.—A detailed description follows :—

Newman.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet. per acre.	
	ACS.			YRS.		
1. Eucalyptus globulus high forest.	2·59	Aspect—North. Slope—Gentle. Soil—Shola type. Crop—Eucalyptus globulus high forest having appearance, almost, of coppice with standards owing to heavy thinning done in 1916–17.	..	..	..	Planted in 1870–71 6′×6′. The plantation was badly burnt in 1878 when 482 cartloads of deadwood were extracted. In 1896–97 an attempt was made to manufacture charcoal by a patent "Morean" iron kiln. The attempt was abandoned after 70 lots had been converted.
Shola	1·20					
	3·79		1916–17	46	22,656	Thinning.
2. Eucalyptus globulus coppice.	2·80	Aspect—North-east. Slope—Gentle. Soil—Grassland type. Crop—Eucalyptus globulus coppice 2 to 3 years old (in 1928). Moderate. Quality II.	..	..	..	See remarks above.
			1918–19	48	8,829	Thinning.
			1925–26	55	14,014	Do.
Shola	0·67		1926–27	56	6,943	Removal of trees left after thinning owing to decision to treat as simple coppice.
	3·47					
3. Eucalyptus globulus coppice.	2·80	Aspect—North-east. Slope—Moderate. Soil—Grassland type. Crop—Eucalyptus globulus coppice 2 to 3 years old (in 1928). Growth fair. Quality II.	..	..	..	See remarks above.
			1919–20	49	16,671	Thinning.
Shola	0·30		1925–27	55/56	14,358	Clear felling.
	3·10					
4. Eucalyptus globulus high forest.	2·75	Aspect—North-east. Slope—Steep. Soil—Shola type. Crop—High forest with crowns badly developed and much suppressed material.	..	..	..	See remarks above.
			1920–21	50	12,938	Thinning.
5. Eucalyptus globulus high forest.	4·09	Aspect—North. Slope—Steep. Soil—Shola type. Crop—As in C. 4.	..	..	..	See remarks above.
			1921–22	51	6,601	Thinning.
Shola	1·12					
	5·21					
6. Eucalyptus globulus high forest.	3·31	Aspect—North-east. Slope—Moderate. Soil—Shola type. Crop—As in C. 4.	..	..	..	See remarks above.
			1922–23	52	9,317	Thinning.
7. Eucalyptus globulus high forest.	2·87	Aspect—North-east. Slope—Steep. Soil—Shola type. Crop—As in C. 4.	..	..	..	See remarks above.
			1920–23	50/53	15,074	Thinning.
8. Eucalyptus globulus high forest.	2·40	Aspect—North-east. Slope—Steep. Soil—Shola type. Crop—Open high forest over coppice.	..	..	..	See remarks above.
			1923–24	53	19,500	Thinning.

Newman—cont.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.			YRS.		
9. Eucalyptus globulus high forest.	2·99	Aspect—North-east. Slope—Steep. Soil Shola type. Crop—Open high forest over coppice.	1924–25	54	15,291	See remarks above. Thinning.

Little Rallia.

Compartment.	Area.	Description.	Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Eucalyptus globulus coppice.	4·00	Aspect—North-east. Slope—Moderate to steep. Soil—Shola type rather poor. Crop — Clear-felled in 1927–28. The crop felled was poor quality but densely stocked.	1927–28	58	17,160	Planted 1870–71. So far as is known has never been worked prior to 1927–28. Clear felling.
2. Eucalyptus globulus high forest.	2·70	Aspect—North-east. Slope—Moderate to steep. Soil—Shola type : poor. Crop—Indifferent growth, high forest, many trees stag headed and much suppressed material.				Planted 1870–71.
3. Eucalyptus globulus high forest.	2·70	Aspec —North-east. Slope—Moderate to steep. Soil—Shola type : poor. Crop—Indifferent growth, high forest, many trees stag headed and much suppressed material.				Planted 1870–71.

Rallia.

Compartment.	Area.	Description.	Year.	Age.	Stacked cubic feet per acre.	Remarks.
1. Eucalyptus globulus with Acacia melanoxylon. Grass	8·41 0·81 9·22	Aspect—North-north-west. Slope—Gentle Soil—Shola type Crop—Eucalyptus globulus partly coppice, partly coppice with standards. Within most parts an admixture of Acacia melanoxylon mostly as an under storey. The crop is of very uneven age.				Planted 1872—9′ × 9′. The greater part of this compartment was clear-felled between 1905 and 1912 for the manufacture of charcoal.
2. Eucalyptus globulus coppice with Acacia melanoxylon. Grass	16·95 0·46 17·41	Aspect—North-north-west. Slope—Steep to moderate. Soil—Shola type. Crop—As in C. 1 but a comparatively small area is coppice—mostly high forest.				Planted 1872—9′ × 9′. A small portion of the compartment was clear-felled between 1905 and 1912 for the manufacture of charcoal.
3. Eucalyptus globulus and Acacia melanoxylon high forest.	3·00	Aspect—North. Slope—Gentle. Soil—Shola type. Crop—Two storey high forest with Eucalyptus globulus over Acacia melanoxylon. A few Eucalyptus obliqua on the north edge of the compartment.				These three compartments (with C. 12 below) form compartment 3 of Mr. Cox's plan. All were planted in 1872 (9′ × 9′) and have not been worked since except for a thinning between 1887 and 1897.

Rallia—*cont.*

Compartment.	Area.	Description.	Past yield. Year.	Age.	Stacked cubic feet per acre.	Remarks.
	ACS.					
4. Eucalyptus globulus and Acacia melanoxylon high forest.	2·84	Aspect—North. Slope—Gentle. Soil—Shola type. Crop—As in C. 3 above.				See remarks above.
5. Eucalyptus globulus and Acacia melanoxylon high forest.	2·80	Aspect—North. Slope—Gentle. Soil—Shola type. Crop—As in C. 3 above.				
6. Eucalyptus globulus high forest with Acacia melanoxylon.	2·90	Aspect—North-north-west. Slope—Moderate to steep. Soil—Shola type. Crop—Two storeyed high forest with Eucalyptus globulus over Acacia melanoxylon.				These five compartments form C. 4 of Mr. Cox's working plan. They were all planted in 1872 (9′ × 9′) and have not been worked except for thinnings or perhaps coppice with standards. The present c. 9 contains 1 acre of pure Eucalyptus globulus (without Acacia melanoxylon) in the south-west part of the compartment.
7. Eucalyptus globulus high forest with Acacia melanoxylon.	2·60	Aspect—North-north-west. Slope—Moderate to steep. Soil—Shola type. Crop—Two storeyed High Forest with Eucalyptus globulus over Acacia melanoxylon.				
8. Eucalyptus globulus high forest with Acacia melanoxylon.	3·10	Aspect—North-north-west. Slope—Moderate to steep. Soil—Shola type. Crop—Two storeyed high forest with Eucalyptus globulus over Acacia melanoxylon.				
9. Eucalyptus globulus high forest with Acacia melanoxylon.	3·0	Aspect—North-north-west. Slope—Moderate to steep. Soil—Shola type. Crop—Two storeyed high forest with Eucalyptus globulus over Acacia melanoxylon.				
10. Eucalyptus globulus high forest with Acacia melanoxylon.	3·0	Aspect—North-north-west. Slope—Moderate to steep. Soil—Shola type. Crop—Two storeyed high forest with Eucalyptus globulus over Acacia melanoxylon.				
11. Eucalyptus globulus high forest with some melanoxylon.	6·75	Aspect—North-west. Slope—Moderate. Soil—Red clayey loam. Crop—About 2 acres Eucalyptus globulus high forest with understorey of Acacia melanoxylon. The rest fine Eucalyptus glob lus high forest.				Planted 1872-9′ × 9′. No reliable record of work since, but has probably been thinned.

Rallia—*cont.*

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
12. Acacia melanoxylon high forest. Swamp	ACS. 1·05 8·56 9·62	Aspect and slope—Level. Soil—Shola type. Crop—A small patch of Acacia melanoxylon high forest with characteristic clean soil and dense foilage.	..	..	..	Planted about 1872. Forms part of C. 3 of Mr. Cox's working plan.
13. Calitris rhomboidea and Pinus longifolia. Grass	9·50 2·48 11·98	Aspect—South. Soil—Grassland type. Crop—The two species are planted in alternate rows. Stocking fairly complete. The Calitris overtops the pine but neither thrives.	..	..	..	Planted 1892—6′ × 6′. Former C. 6 of Mr. Cox's working plan.
14. Calitris rhomboidea. Grass	19·15 0·75 19·90	Aspect—South-west. Slope—Steep. Soil—Grassland type. Crop—More or less fully stocked. Growth on lower slopes fair, but nowhere good.	..	..	..	Planted 1892—6′ × 6′. Former C. 7 of Mr. Cox's plan.
15. Pinus longifolia and Calitris rhomboidea.	11·50	Aspect—North-west and south. Slope—Moderate to gentle Soil—Grassland type. Crop—Two species planted in alternate rows. Growth poor.	..	..	..	Planted 1889-90—6′ × 6′. Former C. 8 of Mr. Cox's plan.
16. Calitris and Pinus longifolia. Grass .. .. .. Swamp	6·20 0·30 0·20 6·70	Aspect—East and west. Slope—Gentle. Soil—Grassland type. Crop—Fairly well stocked but growth very stunted.	..	..	..	Planted 1889-90—6′ × 6′.

KETI.

Area.—34·07 acres—Hardwood Eucalyptus.
6·34 acres—Grass and swamp.
Total area 40·41 acres.

Forest Settlement.—Reserved as the Keti valley Reserved Forest in G.O. No. 3401, Revenue, dated 11th March 1912 (B.P. Forest No. 59, dated 19th March 1914).

History.—Formed by Mr. Cox in 1910–12 as an experiment to find a timber yielding species of Eucalyptus suited to the locality.

Compartments.—A detailed description follows :—

Keti.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet. per acre.	
1. Eucalyptus paniculata.	ACS. 4·28	Aspect—South-east. Slope—Gentle. Soil—Grassland type. Crop—Fully stocked, growth good.	1925-26	14	869	Planted 1910–12 Thinning.

Keti—*cont.*

Compartment.	Area.	Description.	Past yield. Year.	Past yield. Age.	Past yield. Stacked cubic feet per acre.	Remarks.
2. Eucalyptus crebra.	ACS. 3·86	Aspect—East. Slope—Moderate. Soil—Grassland type. Crop—Poor. Fairly well stocked.	..	..	..	Planted 1910–12. Planted as E. sideophloia, but there appears to have been a mistake in the seed supplied from Australia.
3. Eucalyptus crebra. Swamp	4·13 0·68 ——— 4·81	Aspect—South-east. Slope—Moderate. Soil—Grassland type. Crop—Stocking fair, but growth very poor.	..	..	..	Planted 1910–12.
4. Eucalyptus propinqua.	3·60	Aspect—South-east, east and north-east. Slope—Gentle. Soil—Grassland type; very poor. Crop—Fully stocked and growth good.	1926–27	15	1,900	Planted 1910–12. Thinning.
5. Eucalyptus pillularis. Swamp.	3·66 0·17 ——— 3·83	Aspect—North. Slope—Moderate. Soil—Grassland type. Crop—Fully stocked growth good.				Planted 1910–12. Received a thinning about 1920.
6. Eucalyptus acmenoides. Grass. Swamp.	3·03 0·25 0·45 ——— 3·73	Aspect—North-east. Slope—Rather steep. Soil—Grassland type. Crop—Fully stocked, growth moderate, trees inclined to branch.	.. 1925–26	.. 14	.. 400	Planted 1910–12. Thinning.
7. Eucalyptus hemiphloia.	4·05	Aspect—Various. Slope—Almost flat. Soil—Grassland type. Crop—Stocking good, growth very poor and crooked.	..	..	..	Planted 1910–12.
8. Eucalyptus eugenoides.	4·05	Aspect. Slope—Nearly level. Soil—Grassland type. Crop—Well stocked and growth very fair, good in parts.	.. 1924–25	.. 13	.. 1,155	Planted 1910–12. Thinning.
9. Eucalyptus punctata. Grass.	3·41 0·70 ——— 4·11	Aspect—South and west. Slope—Gentle. Soil—Grassland type. Crop—Well stocked. Growth good to moderate.	1925–26	14	1,056	Planted 1910–12. Thinning.
10.	4·09	..	..	..	..	Contains a few oaks planted about 1923.
Blackbridge Hardwood Plantation.						
Not subdivided. Eucalyptus paniculata.	17·50	Aspect—West. Slope—Moderate. Soil—Very poor, red clayey loam; much subject to "wash". No humus. Crop—See remarks column.	..	..	..	Planted in 1922–23–6′ × 6′ with Eucalyptus paniculata. About 22 acres were originally planted. In 1924 the plantation was regarded as a total failure, but now (1928) a fair sprinkling of plants exist on an area

of 17·50 acres. This area is worth bringing under the plan so that it may not be lost sight of. About 3,000 plants occur on the 17½ acres worth retaining.

Tent Hill.

Area.—11·45 acres—all conifers and casuarinas.

Forest Settlement.—Included in Ghaut reserve notified in G.O. No. 1407, Revenue (Forest No. 182), dated 18th December 1884, embodied in B.P. No. 86 (Forest No. 16), dated 14th January 1885.

No rights in the planted area. The Coonoor Municipality license areas within and adjoining the plantation for plague and health camps.

History.—Planted in 1888—90 at a cost of Rs. 505. Has never been worked.

Tent hill.

Compartment.	Area.	Description.	Past yield.			Remarks.
			Year.	Age.	Stacked cubic feet per acre.	
	ACS.					
Not divided into compartments.		Aspect—Various.	..	..	..	Planted in 1888—90 at a cost of Rs. 505.
Casuarina suberosa.	6·49	Slope—Gentle to steep.	..	..	..	Has never been worked and the object of planting is unknown.
Cupressus torulosa.	4·96	Soil—Very poor and heavy yellow clay.				
	11·45	Crop—Excessively open and stunted except for a small part of the Cypress on the lower slope above the plague camp.				

Sim's Park.

Area.—The total area is 100·32 acres of which 9·56 acres are planted with miscellaneous species of Eucalyptus and other exotics.

30·05 acres nominally grass and swamp include the public part of Sim's Park and of the 58·71 acres of shola, part in compartment 1, has been handed over to the Curator, Government Gardens, for use as an experimental orchard.

Forest settlement.—Sim's Park Reserve Forest No. I (compartments 2 to 5) was notified in G.O. No. 1407, Revenue (Forest No. 182), dated 18th December 1884, embodied in B.P. No. 76 (Forest No. 16), dated 14th January 1885.

The carriage drive through the park is a right of way.

A right is admitted to the use of the high level water channel which supplies part of Coonoor with water.

Sim's Park No. II (compartment 1) was notified in G.O. No. 1321, Revenue (Forest No. 172), dated 21st January 1884, embodied in B.P. No. 4276 (Forest No. 446), dated 12th December 1884.

History.—The lower reserve (Sim's Park No. I) was partly converted into a public garden before reservation. Compartments 2 and 3, though nominally reserved forest, are under the control of the Curator, Government Gardens.

Compartment 1 (Sim's Park Reserve Forest No. II) was reserved by Mr. Gamble as an experimental sylvicultural garden and was planted between 1887 and 1891 with a large variety of exotics. It was intended that the area sh uld form a model for plantation work on a large scale, and should serve as a training ground for young forest officers. With changes in the administration this object was neglected, and the experimental plantations seem to have come gradually under the control of the Curator. But in 1906 the whole of compartment 1 was resumed by the Forest department. Later (about 1920) part of the shola area in this compartment was handed over to the Curator as an experimental orchard.

A detailed description of compartments follows:—

Compartment.	Area.	Description.
	ACS.	
1. Eucalyptus and other exotics.	9·56	Leaving the main road (Qalker's Hill road) and going up the Forest Lodge path and continuing along it past Forest Lodge the following trees are met with in the order given.
Shola (including Curator's orchard).	31·86	On the left above the Forest Lodge path a few Eucalyptus gunnii. One of these is numbered (No. 72) and measurements are recorded in the sample plot register.
Grass and swamp.	0·20	Next, a larger patch of Eucalyptus tereticornis No. 73 has its measurements recorded.
	41·62	Then a patch of E. paniculata of fair growth (No. 76—measurements recorded). Then a patch of E. saligna (No. 77—measurements recorded). Then E. eugenoides on both ride of the Forest Lodge drive, extending up to the lodge. A well-grown plot (No. 78—measurements recorded). Beyond, below the drive is another patch of E. tereticornis with No. 79 sample tree. Then, below the drive, specimens of ill-grown Podocarpus elongata, Acer oblongum and a small plantation of Bucklandia populuea of good growth. Then a tall tree of E. eugenoides, an isolated specimen of E. maculata and a little lower down a few E. gambogii in which a sample tree (No. 80) is dead. Then a patch of Syncarpia laurifolia. Then a single tree of E. Navaanglica (No. 82) and E. viminalis (No. 83). Beyond Forest Lodge, above the drive are a few E. corymbosa (sample tree No. 84) and further on a patch of E. siderophloia (several sample trees). The patch ends with a single rather crooked E. paniculata. Passing through the shola area and approaching the Walker's Hill road again six well-grown E. pillularis are found. In the valley below the path is a patch of grevillea robusta, badly grown. On the hill above Forest Lodge is a plot containing E. crebra, E. corymbosa, E. acaciaformis (No. 98 stunted) E. viminalis (No. 96) and some other varieties. The growth in this plot is very poor. Above this plot, and across the Walker's Hill road is a poor plot of Calitris. In the shola area a good deal of Acacia dealbata and other species are intermixed. As mentioned above part of the shola area has been handed over to the Curator as an orchard. There is a big clump of Dendrocalamus Hamiltonia close to the Forest Lodge.
2.	26·46	This forms the public garden of Sim's Park and is under the control of the Curator, Government gardens. From the forest point of view its main interest lies in the collection of eucalyptus and conifers, of which a large number of different species have been planted.
3.	13·64	Shola, largely interspersed with Acacia dealbata and decurrens and melanoxylon. There are also scattered—eucalyptus, conifers and other species. The compartment is under the control of the Curator as an annexe to the park.
4.	13·21	Shola largely interspersed with Acacia decurrens and Acacia dealbata which in places form the main crop. The shola is of poor quality.
5.	5·39	A small piece of grass land along the banks of the Kennaimadu stream which is leased to the Wellington Gymkhana Club and forms part of the golf course.

APPENDIX III.

Constitution of working circles.

—	Area planted (acres).					Grass and swamp.	Shola.	Total area.
	Eucalyptus globulus.	Other eucalyptus.	Acacia.	Other species.	Total planted.			
Coppice Working Circle.								
Aramby felling series.								
Aramby Block II	66·75	..	..	..	66·75	0·26	..	67·01
Do. Block III	69·89	..	..	..	69·89	..	7·92	77·81
Do. Block V [less compartments 16 and 17 (*a*)].	62·86	..	..	3·70	66·56	..	2·62	69·18
Do. Block VII, compartments 3 and 4.	..	..	..	14·73	14·73	1·02	5·53	21·28
Total, Aramby felling series ..	199·50	..	..	18·43	217·93	1·28	16·07	235·28
Cairnhill felling series.								
Cairnhill Block I, compartments 3, 4 (*a*) and 9 (*b*).	10·90	..	..	21·33	32·23	..	..	32·23
Do. Block II, less compartments 22—26.	98·41	..	..	..	98·41	0·33	3·74	102·48
Baikie and Madanna	79·63	..	..	..	79·63	3·72	0·40	83·75
Total, Cairnhill felling series ..	188·94	..	..	21·33	210·27	4·05	4·14	218·46
Governor's shola felling series.								
Blocks I to VII, less compartment 1 of Block IV.	170·31	..	20·90	..	191·21	19·29	4·48	214·98
Snowdon felling series.								
Block II, less compartment 7	22·96	..	38·98	..	61·94	23·62	27·99	113·55
Block III	23·13	..	1·00	..	24·13	14·49	..	38·62
Dodabetta, compartments 5 and 6 ..	10·40	..	..	..	10·40	..	..	10·40
Total, Snowdon felling series ..	56·49	..	39·98	..	96·47	38·11	27·99	162·57
Coonoor felling series.								
Coonoor Peak Block I	191·73	..	..	..	191·73	..	5·11	196·84
Do. Block II, compartment 2.	..	..	..	9·56	9·56	..	..	9·56
Bleakhouse, compartment 10	6·31	..	..	..	6·31	..	..	6·31
Blackbridge and Rock	36·68	..	..	..	36·68	..	..	36·68
Bandyshola, compartments 10 to 24 ..	29·54	..	10·81	..	40·35	7·45	..	47·80
Total, Coonoor felling series ..	264·26	..	10 81	9·56	284·63	7·45	5·11	297·19
Toppakutchi felling series	24·75	..	..	..	24·75	..	..	24·75
Rallia felling series.								
Newman	26·60	..	..	..	26·60	..	3·29	29·89
Rallia, less compartments 12—16 ..	55·35	..	..	..	55·35	1·27	..	56·62
Little Rallia	9·40	..	..	..	9·40	..	..	9·40
Total, Rallia felling series ..	91·35	..	..	..	91·35	1·27	3·29	95·91
Total, Coppice Working Circle ..	995·60	..	71·69	49·32	1,116·61	71·45	61·08	1,249·14
Coppice with Standard Working Circle.								
Muthinad	69·55	..	..	..	69·55	..	..	69·55
Devashola	10·05	..	..	..	10·05	..	..	10·05
Dharma tope	5·36	..	..	..	5·36	..	..	5·36
Total, Coppice with Standard Working Circle.	84·96	..	..	..	84·96	..	..	84·96
Hardwood Working Circle.								
Aramby Block VI	..	39·30	..	..	39·30	34·67	2·89	76·86
Snowdon Block I	..	50·65	..	..	50·65	..	11·08	61·73
Booklands, Bengham and Laselles ..	..	10·00	45·50	..	55·50	..	..	55·50
Dodabetta, compartments 1 to 4 ..	..	100·99	..	..	100·99	..	..	100·99
Keti	..	34·07	..	..	34·07	6·34	..	40·41
Springfield	..	5·25	22·57	..	27·82	..	0·87	28·69
Bleakhouse, compartments 1 to 9 ..	..	..	49·54	..	49·54	..	..	49·54
Bandyshola, less compartments 10 to 24.	..	44·89	..	1·00	45·89	0·44	..	46·33
Blackbridge (Hardwood)	..	17·50	..	..	17·50	..	..	17·50
Total, Hardwood Working Circle ..	..	302·65	117·61	1·00	421·26	41·45	14·84	477·55

APPENDIX III—*cont.*

—	Area planted (acres).					Grass and swamp.	Shola.	Total area.
	Eucalyptus globulus.	Other eucalyptus.	Acacia.	Other species.	Total planted.			

Miscellaneous Working Circle.

Aramby Block I	..	..	..	..	..	20·80	32·96	53·76
Do. Block IV	3·17	..	..	..	3·17	..	..	3·17
Do. Block V, compartments 16 and 17 (*a*).	..	..	..	7·18	7·18	5·57	13·24	25·99
Do. Block VII, compartments 1 and 2.	..	..	..	14·58	14·58	4·30	..	18·88
Cairnhill Block I [less compartments 3, 4 (*a*) and 9 (*b*)].	..	..	0·41	50·41	50·82	36·91	148·97	236·70
Cairnhill Block II, compartments 22 to 26.	..	..	..	2·66	2·66	2·13	62·37	67·16
Andy Block IV, compartment 1 ..	..	..	9·10	..	9·10	..	..	9·10
Snowdon Block II, compartment 7 ..	..	..	..	..	..	5·53	13·69	19·22
Hunt coverts	..	..	..	5·00	5·00	..	..	5·00
Coonoor Peak Block II (less compartment 2).	..	..	..	21·99	21·99	9·82	31·58	63·39
Sim's Park	..	9·56	..	..	9·56	32·05	58·71	100·32
Tent hill	..	..	..	11·45	11·45	..	..	11·45
Cairnhill Block III	..	6·28	..	..	6·28	1·97	..	8·25
Rallia, compartments 12 to 16 ..	..	..	1·06	46·35	47·41	12·29	..	59·70
Total, Miscellaneous Working Circle ..	3·17	15·84	10·57	159·62	189·20	131·37	361·52	682·09

APPENDIX IV.

List of roads.

Plantation.	Name of road.	Length.	Date of construction and improvements.	Cost of construction.	Remarks.
		M. F. CH.		RS.	
Aramby ..	Gambles Road	1 3 5½	1886	* 7,000	Metalled.
	Gass Road	1 4 6	1884–85		
	Parsons Road	1 0 0	Do.		
	Upper bridle-path	1 1 5	..	* 250	Metalled for one furlong
	Round Road (in block VI) ..	0 4 6½	1910	341	
	Road in block V, compartments 13 and 16.	0 2 8	..	1,000	
Cairnhill ..	Jago's Road	3 0 1	..	* 7,000	Metalled—Re metalled 1912.
	Brandis Road	0 5 8½	..		
	Circular Road	0 7 7	..	* 750	
	Junction Road	0 2 1	..	* 200	
	College Road	1 1 0	1914–15	2,658	
	Bridle-path from Circular Road to Grant Duff Road.	0 6 0	1913–14	260	Needs clearing.
	Road from Block II, compartment 17 to Grant Duff Road.	..	1915–16	50	
	Bridle-path through Block II, compartments 1, 6, 7, 10 and 11.	0 5 6	Do.	24	Aligned and partly constructed by Madras Forest College students.
	Rugby Road	0 4 7¼	..	* 150	
Baikie	Central Baikie Road ..	0 6 0	..	* 700	
	Upper Baikie Road	0 4 1	..	* 400	
	Branch from Lower Road in compartment 6.	0 2 1½	..	* 200	
	Branch from Lower Road in compartment 8.	0 0 8	..	* 75	
Madanna ..	Madanna cart-track ..	0 4 6	..	* 150	
	Road from above to Governor's shola road.	0 2 0	1925–26	90	
Sheffield	Road in Sheffield	0 2 4	..	* 150	

* Estimate—Original cost not available.

APPENDIX IV—*cont.*

List of roads—cont.

Plantation.	Name of road.	Length. M.	F.	CH.	Date of construction.	Cost of construction and improvements. RS.	Remarks.
Chowghat Culli.	Lower road	0	1	$9\frac{3}{4}$	..	a 850	From Sheffield corner through Culli.
	Upper road	1	1	$3\frac{1}{3}$	..		
Huppatti ..	Lower road	0	4	$4\frac{1}{2}$	..	* 250	
Snowdon ..	Road in Block II, compartments 1, 2, 3, 5.	0	7	5	..	* 600	
	Road in Block I	0	7	1	1910	165	
	College road	0	3	1	..	* 300	
Marlimund ..	Road in compartments 1, 2, 3.	0	3	$7\frac{1}{2}$	..	* 400	
	Road in compartment 5 ..	0	2	0			
Muthinad ..	Thimman's road	1	1	8	..	* 850	Sigur road to charcoal shed.
	Branch to compartment 8 ..	0	1	3	..		Extended through compartment 7 in 1925-26 (1,293 feet) at cost of about Rs. 220.
	Do. 6 ..	0	3	7	..		
	Road between compartments 1 and 2.	0	2	$4\frac{1}{4}$	..		
Devashola ..	Road from Lovedale road through plantation.	0	2	5	..	* 300	
Dharma tope ..	Path from Connemara road to plantation.	0	2	5	..	* 100	Needs clearing.
Coonoor Park ..	Old Forest road	0	5	2	..	* 6,000	Metalled—improved and metalled 1912 for Rs. 4,683.
	Teneriffe road	0	3	2	..		
	Gass road	0	7	5	..		
	Middle road	0	6	3	..	* 800	Metalled (part lies in Tea Estate) metalled.
	Lower road	0	6	9	..		
	Teneriffe Bridle path ..	0	5	$9\frac{1}{2}$	..	* 150	
	Forest Bridle path	0	6	$3\frac{1}{2}$	1886–87	* 150	
	College upper road ..	1	0	$1\frac{1}{2}$	1916–17	3,661	Metalled.
	Ridge road	0	2	3	..	* 200	
	Tea Estate road	0	2	0	..	* 100	Connecting College Upper and Middle roads.
	Road from old Forest road to compartment 2.	0	3	0	..	* 200	Joins College Upper road
	College Main road	1	1	0	1916–21	10,046	Metalled.
	Kodamalai Patta road ..	0	2	1	..	* 850	Do.
	College Lower road	0	6	5	..		
Bandyshola ..	Bandyshola road	0	7	2	..	* 1,000	Partly metalled.
Bleakhouse ..	Bleakhouse road	1	1	1	1916–17	1,194	
Keti	Keti Plantation road ..	0	4	0	1910	300	
Rallia	Peat-bog-Rallia road ..	1	2	0	..	* 1,000	
	Road in Rallia	1	2	0	..	* 650	
	Newman-Rallia road ..	0	5	3	1916–17	190	

* Estimate—Original costs not available.

List of buildings.

Name of building.	Year of construction.	Cost of construction.	Remarks.
Ootacamund Range.		RS.	
Aramby forest guard's quarters	1890	110	Two rooms.
Do. watcher's hut	1911	150	One room.
Sheffield forest guard's quarters	1890	110	Two rooms.
Do. fish watcher's hut	..	..	One room. Not now used by fish watcher.
Cairnhill forest guard's quarters	1890	290	Two rooms.
Snowdon forest guard's quarters	1898	150	Do.
Do. watcher's hut	1910	150	One room.
Dodabetta forest guard's quarters	1890	310	Two rooms.
Depot buildings, Ootacamund	..	..	The practice now is to lease to a fuel contractor.
Coonoor Range.			
Forest Lodge, Sim's Park	1906	2,000	Range Officer's quarters. (Half chargeable to Working Plan area.)
Rallia Rest-house	1890	390	Wooden walls, thatched, unfurnished.
Do. forest guard's quarters	1906	83	One room.
Bandyshola subordinates lines	1914	2,010	An extra room added in 1924-25. Cost Rs. 472.
Watcher's hut, Keti	1907	100	
Coonoor depot buildings	..	..	

APPENDIX V.

Origin and cost of formation of the existing Hardwood Plantations.

Mr. Cox, who started the hardwood plantations of Aramby (Block VI), Snowdon (Block I) and Keti, writes as follows:—

" Sir Francis Spring in 1905 suggested to Government the advisability of experimentally planting some of the Australian Hardwoods on the Nilgiris for the purpose of future sleeper supply in India. He quoted the following list of timber trees tested by Mr. J. Adam, Consulting Engineer to the Bombay Government and compared their span of life to that of the Indian Sleeper timbers the life of which under suitable conditions was put at 16 years for sal, 14 for teak and 12 for Xylia and deodar.

Species.		Australian name.	Years of life as sleeper in Indian conditions.
Eucalyptus	siderophloia	Iron barks	25
Do.	paniculata		
Do.	crebra		
Do.	propinqua	Grey gums	22
Do.	punctata		
Do.	microcorys	Yellow wood	20
Do.	eugenoides	White Stringy bark	18
Do.	acmenoides	White mahogany	
Do.	hemiphloia	White box	
Do.	pillularis	Black-butt	16

" The subject was not immediately taken up owing to the uncertainty of identification of the numerous species of Eucalyptus already grown on the Nilgiris and time was spent on collecting botanical specimens for identification by Dr. Maiden at Sydney. The latter identified a certain number of species from trees in Sim's Park and the Government Gardens and the trees identified were labelled by Mr. Proudlock, the Curator. Nothing further was done and the whole subject was lost sight of until Mr. Francis, the Collector of the Nilgiris, took it up in 1909.

" Of the species given in the above list six were discovered, but of these only three were represented by trees of any size. As a matter of fact all the species except Eucalyptus propinqua are to be found in more or less adult form on the Nilgiris, but at the time there was no means of identifying them unless they happened to bear a label.

" Specimens of timber from these three species (E. crebra, E. eugenoides and E. pilularis) were sent to the Madras College of Engineering and the results are given below:—

The results given are averages of three specimens tested.

—	E. eugenoides.	E. pilularis.	E. crebra.	—
Tension tests.				
Diameter of specimen	·758	·777	·769	inches.
Area	·4509	·4818	·4645	square inches.
Elongation on 1 inch per ton load	·00282	·00236	·00254	inches.
Modulus of elasticity per square inch	800·8	901·7	849·8	tons.
Maximum load (total tons)	3·78	3·22	2·52	"
(Stress per square inch)	8·34	6·80	5·40	"
Bending tests.				
Dimensions of cross-section	3·95 × 5·21	4·068 × 5·55	4·42 × 5·47	inches.
Moment of inertia	48·60	66·42	60·43	"
Span	54	55	42·	"
Deflection per ton load	·1375	·0654	0·03574	tons.
Modulus of cross bending per square inch	594·9	799·9	..	"
Elastic limit. Load at centre	3·27	5·42	..	"
Elastic limit. Greatest stress, per square inch	2·44	3·13	..	"
Maximum load. Load at centre	7·13	10·01	..	"
Maximum load. Greatest stress at centre per square inch.	5·14	5·66	..	"

" . . . . Sanction was given to undertake an experiment on a sufficient scale to thoroughly test the possibility of growing hardwood Eucalyptus on the Nilgiris and the three plantations of Snowdon Aramby and Keti were formed in 1910.

" The sites selected are at elevations ranging from 8300 to 6700 and provide a fair test of the possibility of growing the species on the somewhat poor soil and in the exposed positions which future plantations on a larger scale would have to put up with."

Cost of formation.

Aramby (Block VI)—Planted area 39·30 acres.

Period.	Nature of work.	Cost.	Remarks.
		RS.	
1910–1912	Pitting	491	This works out at considerably over 100 per acre, but this gives no true idea of the cost of formation of a hardwood plantation as enormous expenditure was incurred on shading from frost and propping the species which have proved obviously unsuited to the locality. In addition to the expenditure recorded in this statement a watcher was employed for several years on Rs. 12 per mensem and an amount of about Rs. 10 a year may be allotted for a share of fire protection. A net revenue of about Rs. 550 has been obtained from thinnings up to 1928.
1910–1917	Fencing and ditching	209	
1910	Inspection paths	341	
1910	Buildings	150	
1910–1917	Cost of seed	100	
1910–1918	Raising seedlings	371	
1910–1912	Baskets and mossing	162	
1910–1917	Planting and filling blanks	528	
1910–1918	Shading and propping	2,348	
1910–1922	Boards, tools, etc.	176	
	Total	4,876	

Snowdon (Block I)—Planted area 50·65 acres.

Period.	Nature of work.	Cost.	Remarks.
1910–1912	Pitting	594	Just over Rs. 100 per acre. See remarks against Aramby hardwood plantation above. A watcher was also employed for several years for this plantation and some proportion of the fire protection charges should be borne by it, say, Rs. 15 annually.
1910–1912	Fencing and ditching	..	
1910–1912	Roads	165	
1910–1912	Buildings	150	
1910–1917	Cost of seed	89	
1910–1917	Raising seedlings	295	
1910–1912	Baskets and mossing	162	
1910–1917	Planting and filling blanks	723	
1910–1917	Shading and propping	2,956	
1910–1918	Boards, tools, etc.	157	
	Total	5,291	No revenue has yet been derived.

Keti Plantation—Planted area 33·93 acres.

Period.	Nature of work.	Cost.	Remarks.
1910–1917	Pitting	637	About 83 per acre. Cost due to lower elevation and consequent less necessity for shading from frost, etc.
1910–1916	Fencing and ditching	259	
1910–1912	Roads	303	
1910–1912	Buildings	276	
1910–1916	Cost of seed	60	
1910–1912	Raising seedlings	85	To the cost in the statement is to be added a watcher's pay and fire protection at about Rs. 20 per annum.
1910–1918	Baskets and mossing	285	
1910–1918	Planting and filling blanks	551	
1910–1918	Shading and propping	241	
1910–1925	Boards, tools, etc.	199	About Rs. 1,000 net revenue realized from thinnings up to 1928.
	Total	2,896	

Dodabetta Hardwood Plantation—Planted area 111·39 acres.

Period.	Nature of work.	Cost.	Remarks.
1922–26	Nursey charges	1,877	
1922–23	Survey	30	Rs. 67 per acre.
1922–23	Clearing	341	
1922–23	Pitting	1,819	
1922–24	Planting	994	In addition a watcher on Rs. 12 is maintained and about Rs. 10 a year is spent on fire protection.
1922–26	Filling blanks	310	
1922–24	Weeding	20	
1922–26	Mossing	696	
1922–25	Shading	1,156	
1922–24	Miscellaneous	220	
	Total	7,463	

Blackbridge Hardwood Plantation—Planted area 17·50 acres.

Period.	Nature of work.	Cost.	Remarks.
1922–24	Pitting	1,112	Rs. 152 per acre, but the expenditure on forcing frames not fairly chargeable in whole to this plantation. Also a larger area was planted and part failed.
1922–24	Mossing	134	
1922–24	Planting	125	
1922–23	Shading	160	
1922–23	Cost of seed	138	
1922–23	Cost of forcing frames	723	
	Cost of nursery boxes, pandal, etc.	170	
1922–27	Cost of tools, etc.	100	
	Total	2,662	

Period.		Nature of work.	Cost.	Remarks.
			RS.	

Bingham—Planted area 5 acres.

Period.		Nature of work.	Cost.	Remarks.
1926-28	..	Lining and pitting	72	The plantation is not yet fully established.
1926-28	..	Raising seedlings	31	
1926-28	..	Planting	37	
1926-28	..	Shading	68	
1926-28	..	Weeding	23	
1926-28	..	Filling blanks	34	
		Total ..	265	

Brooklands—C. 2—Planted area 5 acres.

Period.		Nature of work.	Cost.	Remarks.
1927-28	..	Lining and pitting	83	The plantation is not yet established.
1927-28	..	Raising seedlings	26	
1927-28	..	Planting	53	
1927-28	..	Shading	3	
1927-28	..	Weeding	6	
		Total ..	171	

Cost of formation up to end of 1927–28.

Bandyshola and Springfield (Hardwoods).

—	Planted area.	1924-25.	1925-26.	1926-27.	1927-28.	Total.	Remarks.
		RS.	RS.	RS.	RS.	RS.	
Bandyshola Compartment—							
1	2·92	63	40	4	..	107	About Rs. 180 in addition spent on nursery work for all compartments. Very little further to do in compartments 1 to 9 till thinning starts. The rest require further tending, etc.
2	1·94	42	37	5	..	84	
3	3·37	..	126	33	8	167	
4	3·56	..	122	43	22	187	
5	1·81	..	70	40	20	130	
6	2·88	..	125	45	43	213	
7	1·75	..	76	37	30	143	
8	5·56	180	125	59	40	404	
9	3·10	95	65	18	18	196	
25	2·72	..	..	42	32	74	
26	2·75	..	..	60	35	95	
27	1·93	..	..	37	24	61	
28	5·80	..	..	134	64	198	
29	2·44	..	..	..	94	94	
30	3·25	..	..	..	93	93	
Springfield Compartment—							
1	5·25	..	..	..	133	133	

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Working plan—Revised—The Nilgiri Plantations.

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Chief Conservator of Forests.

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The Working Plan is sanctioned.

R. D. RICHMOND,
Chief Conservator of Forests.

(True copy)

C. SHELSWELL,
Personal Assistant.

To the Conservator of Forests, Sixth Circle. } In manuscript.
„ District Forest Officer, the Nilgiris. }
„ Conservator, III (Working Plans) Circle. }

Copy to other Conservators of Forests and District Forest Officers.
„ the Principal, Forest College, Coimbatore.